The American horologist and jeweler

Vol. 21 May 1954 No. 5

INCORPORATING HOROLOGY

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MAY 19 1954

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The American horologist and jeweler

Incorporating Horology

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New!

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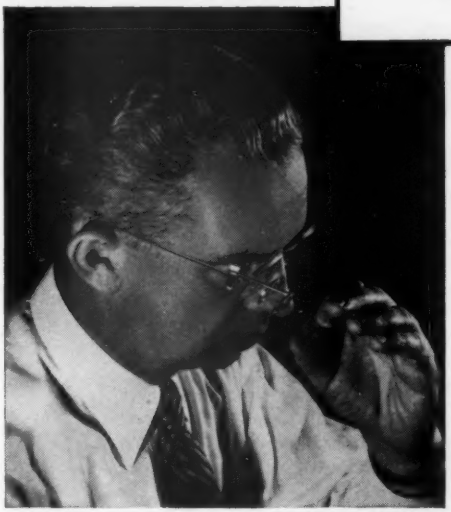

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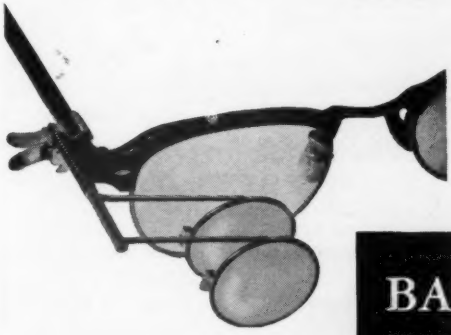

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1

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—oxidation proof
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2

3

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4 — NIVAFLEX = antimagnetic— does not react to thunderstorms and to abrupt changes of climate and temperature

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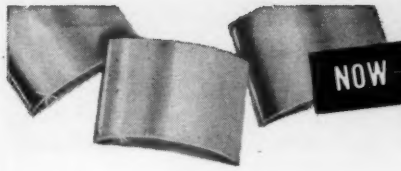

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Show the Ev-R-last guarantee to your customers, and you can easily get a few dollars more for your repairs; yet Ev-R-last costs little more than regular mainsprings.

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This mainspring is guaranteed to be of highest quality and will be replaced free of charge if it breaks under normal conditions.

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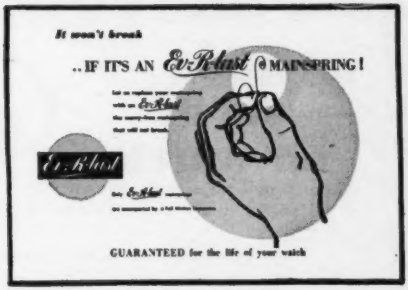
This attractive 2-color display card is for your counter or window. It's 9" x 11" mounted on an easel, and given *free* with your purchase of Cabinet 60-165 or Unit EL-1. Be sure you ask for yours!



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Then bring it in to us; the experts in our repair department will find the trouble, and fix it for you, skillfully and at moderate costs.
If it's Mainspring trouble, now we can offer you the new
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GUARANTEED for the LIFE of YOUR WATCH
It's sensational, made of a special ALLOY STEEL that is guaranteed not to break. Yet this new Ev-R-last mainspring costs you only a trifle more than the old-fashioned ordinary ones.
For the Best in Watch Repairs — for Quick, Dependable Service
Be sure you come to
YOUR NAME
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Ad mat 4" wide, 3" deep

This free newspaper mat is for your local advertising. It's for a 3 inch by 2 column ad, and, as you see, features your general repair service as much as Ev-R-last Mainsprings. Ask for yours; it's free, of course.

Write your material supply house today.
Ask for Ev-R-last Circular.

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Many queries have been received from America's jewelers and watch suppliers asking the effect of a higher tariff on jeweled-lever watches with Swiss movements. Briefly, a 50 per cent increase in tariff is sought on imported parts and watches with 17 jewels or less (the current tariff amounts to an average 35 per cent ad valorem). To answer these queries, The Watchmakers of Switzerland quote from official testimony.

What do Jewelers think about

another tariff on watches

Representative retail jewelers gave the United States Tariff Commission their thoughts on a watch-tariff increase during testimony taken at the first governmental hearings in 1951. These statements, and the names of the men who made them, are part of the official record on file with the Tariff Commission, Washington, D. C.

The Watchmakers of Switzerland

"Any increase in the price of watches to the consumer (through markups due to increased tariffs) . . . would be certain to have a sales deferring effect and likely would further reduce the total volume of sales . . .

"Moreover, to add more duty . . . would have a tendency to substitute inferior grades for the better quality watches now sold by most jewelers.

". . . There is absolutely no question in my mind that an increase of $1.50 at import level must be reflected by an increase of $5 on the average to the consumer at retail level . . . If this increase is put through, the popular priced watch will be a thing of the past."

. . . from the testimony of a Virginia jeweler, representing 1,800 other retailers.

"I think it is obvious to all of us that nothing but harm could result to the retailer from this proposal (tariff increase) because of a necessary increase which we believe will follow in the price to consumers, and because of a general reduction in business which must inevitably follow."

. . . from the testimony of a California jeweler, representing a group of state jewelers.

". . . the tariff would hurt us not only from the standpoint of reducing the purchasing power, but would be unfair to the number of jewelry stores in the United States that are in positions similar to us that do not have access to some of these American watch lines."

. . . from the testimony of a West Virginia jeweler, operating 14 stores employing 200 people, and also representing a state group of jewelers.

"In my belief from past retail experience and coming into direct contact with the consumer, I feel that a tariff rise would hurt the sale of not only Swiss watches but also American makes."

. . . from the testimony of an Alabama jeweler, representing a group of state retailers.

"I think we should be grateful to the Swiss importers . . . They have done a lot of work for the watch industry as a whole. In fact, they have done a lot that the American manufacturers should thank them for too."

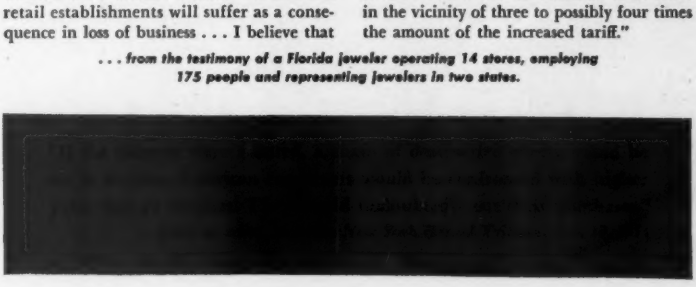
. . . from the testimony of a South Dakota jeweler, representing jewelers in that state.

"I am representing 80 Connecticut jewelers who have gone on record against this proposed tariff increase . . . When we talk about our Swiss importers—the American importers of Swiss watches and what they have done for the retail jewelry business, it makes me feel as far as I am concerned that we are indebted to them as retail jewelers. I want that in the record."

. . . from the testimony of a Connecticut jeweler, representing other jewelers in that state.

". . . many customers will be forced to go without much-needed watches and that our retail establishments will suffer as a consequence in loss of business . . . I believe that we would see an increase in the retail price of the watch to the consumer of somewhere in the vicinity of three to possibly four times the amount of the increased tariff."

. . . from the testimony of a Florida jeweler operating 14 stores, employing 175 people and representing jewelers in two states.



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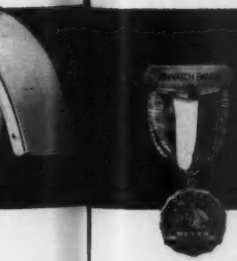

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72 gilt bushings (12 sizes of 100 to 300/100mm) in aluminum tube.

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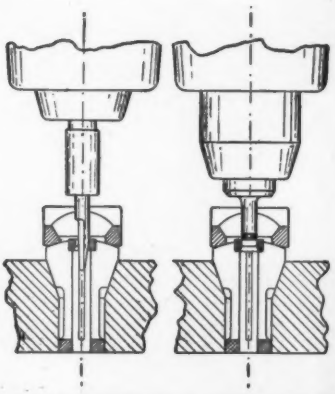
Ream the plate with the Seitz reamer of the required size. Place the bushing in the chuck with the cup down. Fix this into the special holder and clamp it. Ream the bushing to the size of the jewel desired. Press the jewel and bushing as usual. This entire operation can usually be performed in about three minutes.



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- **INCABLOC maintains the accuracy of a watch.**
- **INCABLOC extends the life of a watch.**
- **INCABLOC is now used in over 75,000,000 watches—proof that watch manufacturers and customers recognize the importance of INCABLOC in watches.**

And just as important, INCABLOC protects *you* because—it reduces unprofitable returns and servicing to a minimum during the guarantee period of the watch—keeps your customers satisfied. Tie in with INCABLOC's powerful national advertising in LIFE, SATURDAY EVENING POST, WOMAN'S HOME COMPANION. Use INCABLOC free selling aids—colorful six-page booklets, counter cards, mats, watch tags.

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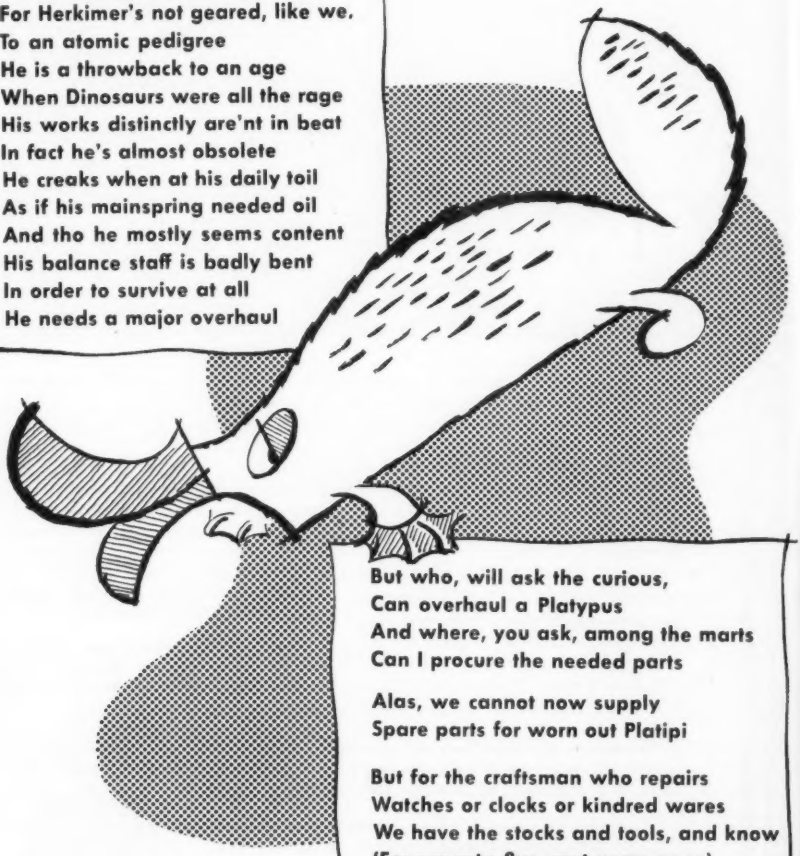
Poor Herkimer the Platypus
He lives in holes and seldom fusses
While raising little Platypuses
For Herkimer's not geared, like we.
To an atomic pedigree
He is a throwback to an age
When Dinosaurs were all the rage
His works distinctly are'nt in beat
In fact he's almost obsolete
He creaks when at his daily toil
As if his mainspring needed oil
And tho he mostly seems content
His balance staff is badly bent
In order to survive at all
He needs a major overhaul



But who, will ask the curious,
Can overhaul a Platypus
And where, you ask, among the marts
Can I procure the needed parts

Alas, we cannot now supply
Spare parts for worn out Platipi

But for the craftsman who repairs
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We have the stocks and tools, and know
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#312E—3x12x9½	#614H—6x14x10½
#311E—3x11x9½	#613E—6x13x9½
#311K—3x11x11½	#611H—6x11x10½
#310H—3x10x10½	#611K—6x11x12½
#3511R—3½x11x14	#610H—6x10x10½
#413E—4x13x9½	#610—6x10x11½
#413H—4x13x10½	#6514F—6½x14x10
#411K—4x11x11½	#6511J—6½x11x11
#4514H—4½x14x10½	#714E—7x14x9½
#4513J—4½x13x10¼	#713E—7x13x9½
#515C—5x15x8½	#713H—7x13x10½
#514C—5x14x8½	#712K—7x12x11½
#513C—5x13x8½	#711H—7x11x10½
#513E—5x13x9½	#711K—7x11x11½
#513H—5x13x10½	#710H—7x10x10½

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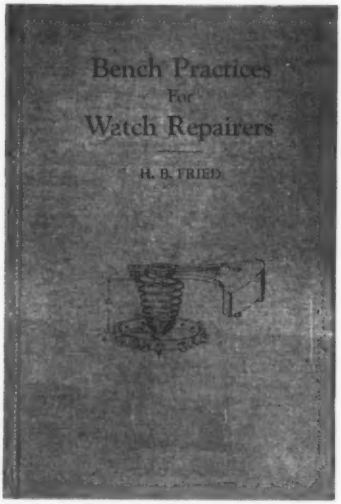

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The most practical book for the man at the bench.

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The American horologist and jeweler Incorporating Horology

Volume 21 May, 1954 No. 5

Influence of the Escapement on the Duration of the Oscillations of the Balance

By Jules Grossmann (1901)

CONTRIBUTED BY J. E. COLEMAN

Radio, newspapers and weekly magazines are pressed by the rule of bringing their readers the very latest, up-to-the-minute news. Trade publications such as your A. H. & J. are not so bound. The date of origin of the subject matter is not of prime importance for the very simple reason that the basic fundamentals of the science of horology are not as changing as the times—your A. H. & J. staff is more concerned with (1) the quality of the material, (2) whether or not it has lately been accessible to you readers, instead of whether or not it may be hot-off-the-wire.

We felt it sheer luck when we chanced upon this accurate translation from the original German, of a paper by one of the old masters.

Mr. Jules Grossmann was one of the most eminent, if not the most eminent, of the world's horologists of his time. Born near Berlin in 1829, he died at Le Locle, Switzerland, February 27th, 1907. When 15 years old he was apprenticed to a watchmaker in his home town and there began the career in which he was to achieve so much fame —from there to Berlin, to London and finally to Switzerland, where he became director of the horological school at Le Locle in 1867. About the turn of the century, the Swiss government in an effort to coordinate the horological teaching systems entrusted Mr. Grossmann and his son, Hermann, with the task of devising and compiling a system which would be thorough and perfect. The result of their work was two volumes published under the French title: "Horlogerie Theorique," Cours de Mecanique appliquee a la Chronometrie.

This work has never been completely translated into English and perhaps our readers are most familiar with it through the reference in "Practical Benchwork," by Louis and Samuel Levin. When writing of Willy Grossmann (grandson of Jules and son of Hermann, who died Dec. 25th, 1936), the eminent horologist Paul Ditisheim, said: "Through three generations, and during a time when the technique of teaching horology had yet to be developed, they (the Grossmanns), occupied a dominant position." —J. E. C.

THE function of the mechanism of the escapement consists in restoring to the pendulum or the balance the speed which has been lost by passive resistance.

The escapement receives the force of the train and transmits it in its turn to the regulating organ. This restitution of force is effected periodically during a fraction of the oscillation. During the part of the oscillation, or during the oscillations without external impulse, the escape wheel is stopped up to the instant of the next unlocking. This unlocking is operated by the balance itself at the requisite instant,

and the wheel, then becoming free, impresses on it a new impulse.

The manner in which the stoppage of the escape wheel is produced differs with every system. In general two categories may be considered, in which all kinds of escapements may be classed. The first of these divisions comprehends the systems in which the escape wheel, after having operated the impulse, rests against the balance staff or against a piece invariably attached to it. The stoppage of these escapements is therefore effected only at the detriment of the speed of the balance, since there is produced a less or greater pressure against its staff; such, for example, as in the duplex and cylinder escapements of watches and certain levers of clocks. In the second division are placed all the systems in which the wheel is stopped by a piece independent of the balance, thus allowing the latter to complete its vibration in complete freedom of the external mechanism. Such are the lever and chronometer escapements.

The first of these divisions naturally takes the name of frictional escapements, and the second that of free escapements.

If we consider the escapements of ancient construction, and even some modern systems, it is noticed that the effects of the locking are often complicated with the effects of the recoil of the wheel, and consequently a special classification has sometimes been admitted for these forms. The system called *"constant force"* would thus merit the honor of a special classification. But it is more simple to consider only the two grand divisions which we have mentioned, and to include all known systems by taking notice of the effects of the locking of the escapement on the balance or the pendulum.

Jules Grossman

In order to take account, in a general way, of the influence of the escapement on the duration of an oscillation, and to be able to judge of the qualities of such a mechanism from this viewpoint, let us first examine the effect produced by an external force acting in one direction or the other on a balance in motion.

A balance vibrating freely under the influence of the spring, is in the requisite conditions to produce isochronous oscillations, that is, of equal duration. In practice this last absolute liberty never exists. The friction of the pivots, the resistance of the air, the impulse of the escapement, the resistance of the unlocking, shocks of all kinds, are so many causes which concur in destroying perfect isochronism; in other words, producing variations in the rate of the watch.

I propose to study the influence of these external forces, first considering them only as instantaneous forces, acting at different points of the course of the balance. Let *H*, Fig. 1, be the position of the balance at rest. Suppose that the vibration commences at the point *B*, and that at the same instant any force whatever is added to that of the spring. This force, of which we designate the moment by *F*, acts in the direction of the movement during the course of the small angle *B O b*. On account of the addition of this new force to the spring, the balance will pass over the angle *B O H* equal *a o*. with a greater speed and consequently in less time, than when it proceeds under the sole influence of the spring. The duration of this demi-oscillation (descending demi-oscillation) will, therefore, be shortened. The balance will reach the point *H* with augmented speed and, consequently, on arriving at the point *C*, at which this speed would become null if the force *F* had not acted, it will pass beyond this point and, for example, will reach *c*. By virtue of the principle of isoch-

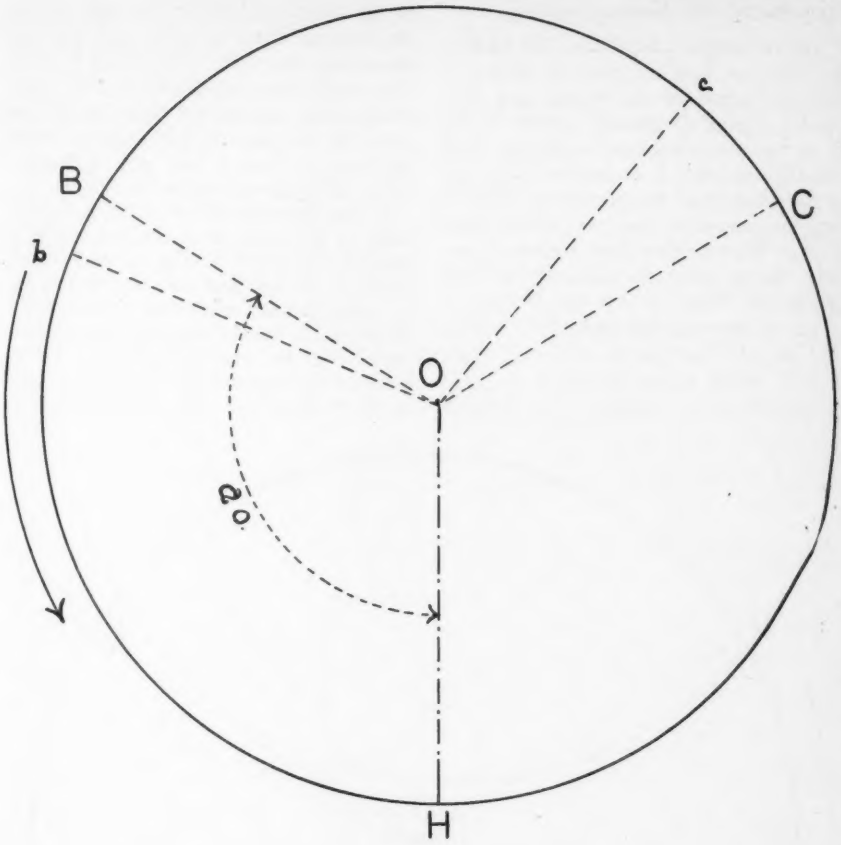


FIGURE 1

ronism, the duration of this ascending demi-oscillation will not be influenced, the balance having passed over this greater angle with greater speed. The total duration of the oscillation will not thus be less diminished because the descending demi-oscillation has been. There will be, therefore, an advance in the rate of the watch.

Let us now imagine the same balance, still setting out from the point *B*, but this time under the sole influence of the spring. Arrived at the point *c'* (Fig. 2) situated very near *C*, it receives a force, of which the moment *F* acts during the instant the balance employs in passing over the angle *c' O C*, and in the same direction of its movement. It may be admitted that at the instant that the balance reaches *c'*, the normal duration of the oscillation has passed, and the consequence of the application of the force *F* at this point will be easy to deduce, since the balance must yet pass over an angle such as *C O c*. The duration of the oscillation will, therefore, be increased and there will be a retardation in the rate of the watch.

From the consideration of these two extreme cases it follows that it is not necessary that the force should change direction in order to diminish or increase the duration of a vibration of the balance. It is sufficient that its action be established during the descending demi-vibration or during the ascending demi-vibration.

Let us examine a third case. The balance still sets out from the point *B*, subject to the sole action of the spring, and thus reaches a point *D*, situated between *B* and *H* in the descending demi-oscillation (Fig. 3). At this point *D* an external force acts in the direction of the movement, and during the course of the very small angle *D O d*. We have then three periods to consider, during which the balance passes over the angles *B O D*, *D O H* and *H O C*.

Let us represent the angle *D O H* by *a*, and regard it as variable, while the angle *B O H*, which we designated by *a o*, will be considered as constant. The duration of the oscillation will not be modified by the external force *F* while the balance passes over the angles *B O D* and *H O C*. The modification introduced by the effect of this force will be felt only during the course of the angle *D O H* equal *a*, since this angle is passed over with a greater speed, and consequently in less time.

If the value of the moment *F* is the same in this case as in the first, and if the two angles *b O B* (Fig. 1) and *B O d* (Fig. 3) are the same also, the velocity at the point *d* must, in the two cases, remain the same. In the first case the balance has passed over the angle *a o* with a velocity immediately augmented, whilst in the latter the velocity has only changed during

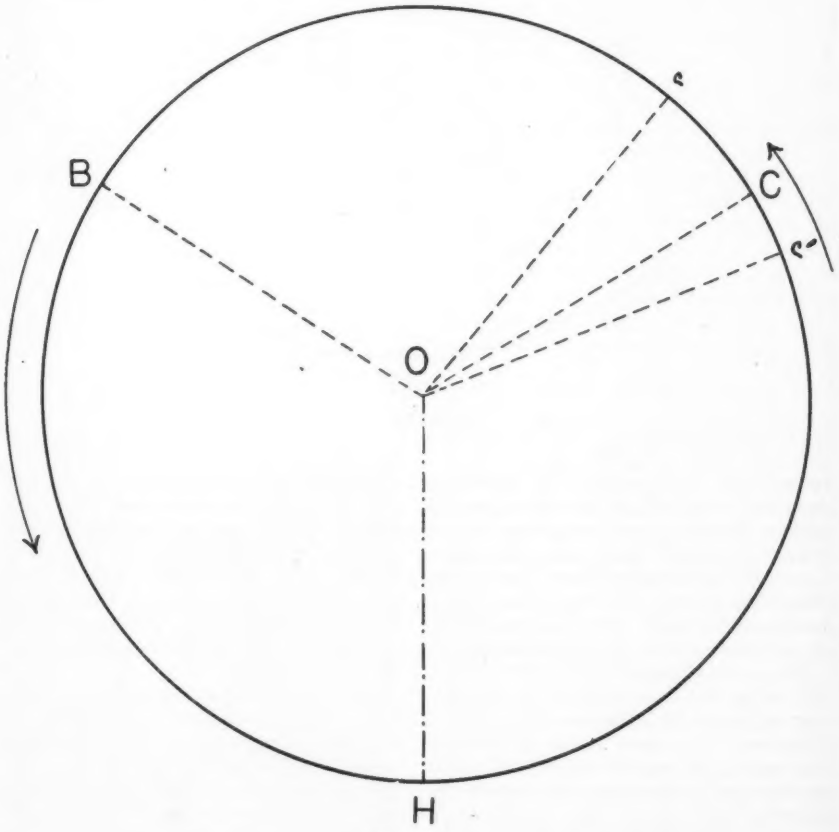


FIGURE 2

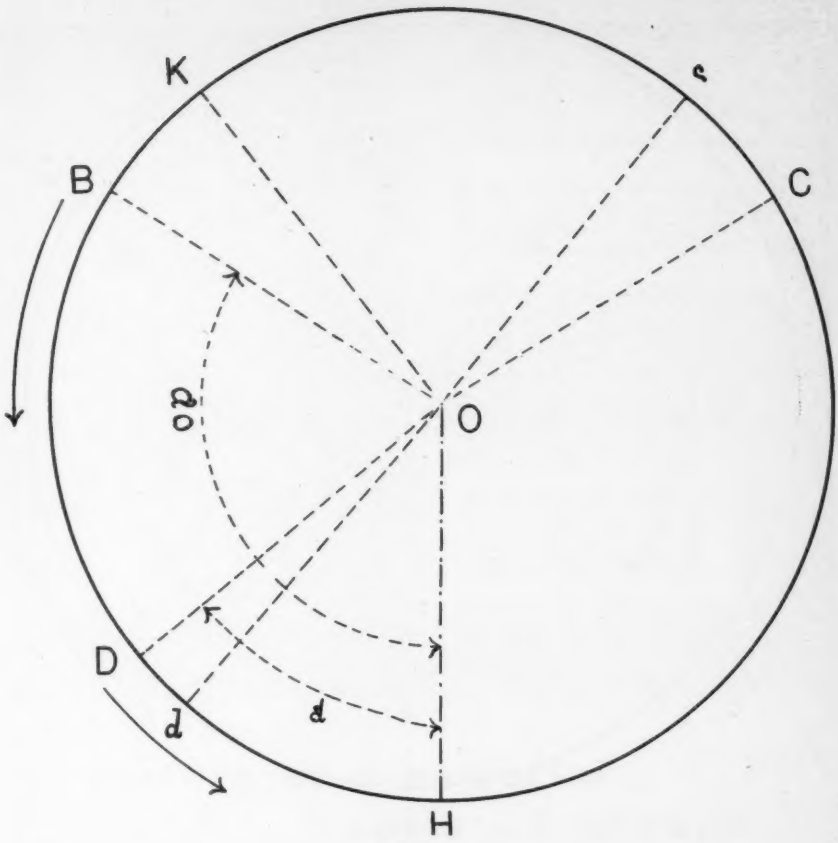


FIGURE 3

the course of the angle *a*. The modification of duration is, therefore, here still represented by a *"diminution"* of time, and the sole difference will be in this that the *"advance"* will be less considerable than in the first.

Let us represent by ▲T an augmentation of duration of oscillation and consider the variable value of *a* as negative during the descending demi-oscillation of the balance. ▲T must evidently be a function of *F*, of *a*, and of *a o*, and we can express this relation by the form $\blacktriangle T = f\left(F\frac{a}{a_0}\right)$.*

*This value ▲T depends besides on the small angle *D o d*, on the moment of inertia of the balance, and on the moment of the force of the spring, but we are not concerned with these values.

Now let us examine a fourth case; that is, one in which the force *F* acts on the balance during the course of the small angle *E O e* of the descending demi-oscillation (Fig. 4). We have again here three periods to notice, that is, in the course of the three angles *B O H*, *H O E* and *E O c*. There is no change in the duration during the course of the two angles *B O E* and *E O c*. The modification will take place only during the course of the angle *H O E* equal *a*.

In order to prove this assertion, let us make a comparison between two oscillations of the same balance. Let us submit for the first, a point of departure *K* of the balance, the oscillation being accomplished under the sole action of the spring. The velocity will then become null at the point

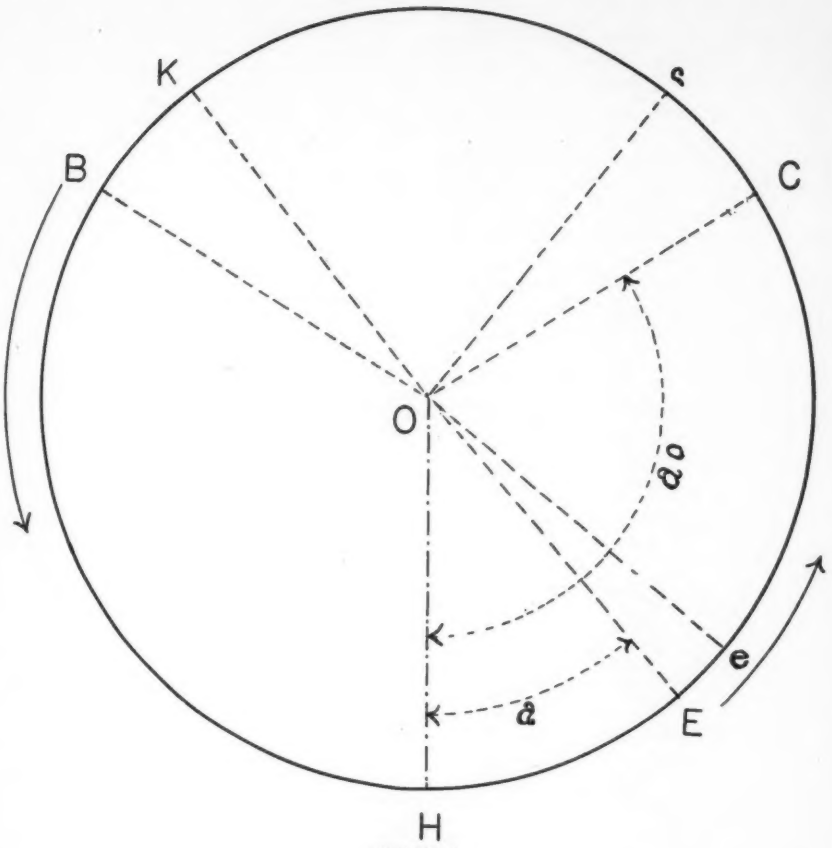


FIGURE 4

ESCAPEMENT INFLUENCE—Continued

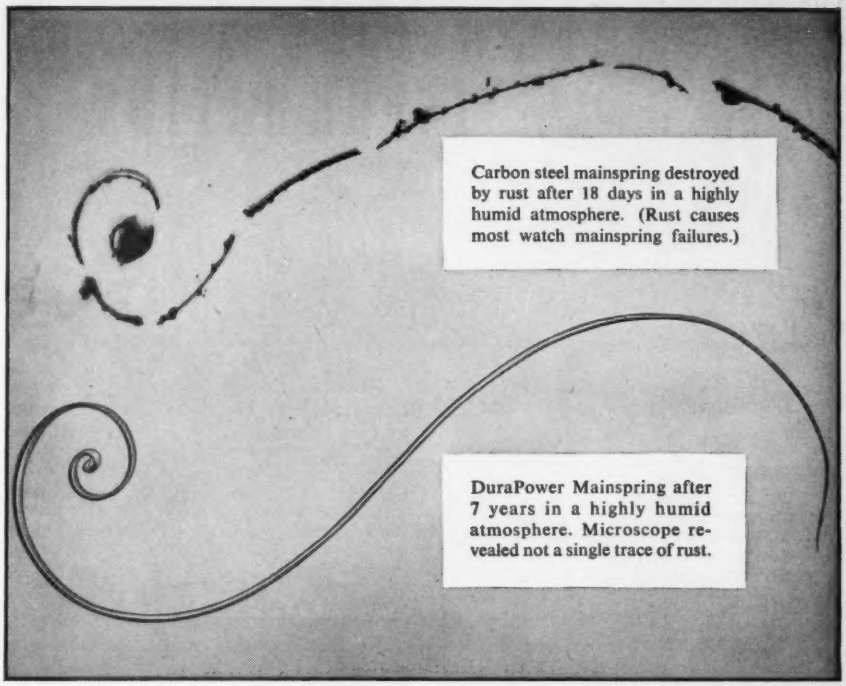
c, so that we will have angle *K O H* equal angle *H O c*. For the second oscillation let us imagine the balance setting out from the point *B* and receiving during the angular course *E O e* the action of the moment of force *F*. Let us suppose that the point of departure *B* has been selected in such a way that for this oscillation, influenced as in the first, the velocity becomes null at the same point *c*.

In the first oscillation the balance reaches the point *H* with a greater velocity than in the second, since it sets out from *K* in the first place and from *B* in the second. Consequently it will pass over the angle *H O E*, in the later case with a less velocity, and will employ more time than in the first.

By the influence of the force *F*, acting according to the position of the rest *H*, the duration of the oscillation will undergo an increase, and a "retardation" will result. The equation $\blacktriangle T = f\left(F\frac{a}{a_0}\right)$ therefore corresponds also to the ascending demi-oscillation. If the values of *F* and of *a* are positive, $\blacktriangle T$ will also be positive and be added to the normal duration *T* to produce an increase of the duration of the oscillation.

If these two values are negative, that is, if the moment *F* acts in a direction opposite to the movement during the descending demi-oscillation, the value *D T* will remain positive and will also be a retardation.

(To Be Concluded Next Month)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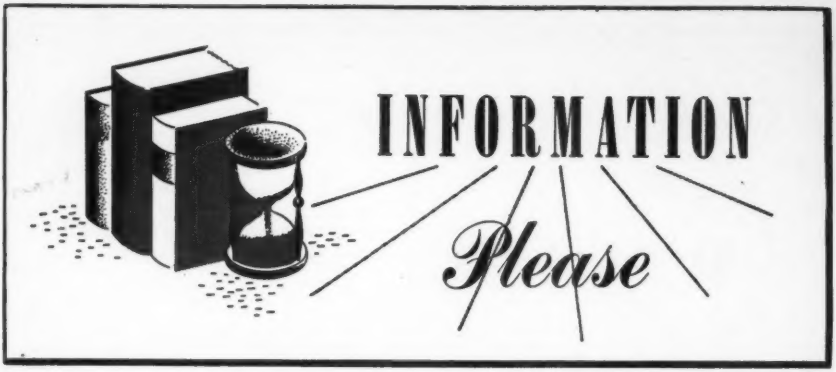

HGZ: Will you please explain the difference between coin silver and sterling silver?

Answer: Coin silver is 900/1000 fine, and sterling silver is 925/1000 fine.

JLL: I have a three-piece enamel watch dial in which the seconds bit has fallen out. How can I re-solder it back in place without damaging the rest of the dial?

Answer: Scrape the surface to be soldered perfectly clean, then lay the dial on a brass or copper plate, and place the seconds bit in a fixed position. Place some small chips of bismuth solder around the joint, adding some soft solder flux along the joints. Hold the plate and dial over an alcohol lamp, heating the plate and dial evenly to prevent cracking the enamel. Continue heating until the solder flows, filling the joint. Bismuth solder is very easy flowing and requires considerably less heat than the ordinary soft solder. Bismuth solder may be obtained from your jobber.

DO'R: Can you give a formula for a good cement that I can use for cementing gem stones and similar ornamentations to a metal surface?

Answer: For cementing gem stones and ornamentations on metal objects, prepare the following cement: 3 parts shellac, 3 parts mastic are dissolved in good alcohol, as much glucose is added so as to make a stiff paste. This mixture is distinguished for special toughness. There is another cement recommended that will hold for a long time and in use requires only a little heating. 6 parts sandarac is dissolved in 50 parts of high per cent alcohol, and 6 parts of turpentine is added. The objects to be cemented must be absolutely clean and the closer the joint, the better the job.

EL: At one of our meetings, the speaker mentioned something about the exit jewel. I was called away and did not learn what he was talking about. What is meant by the exit jewel?

Answer: In shop parley the pallet stones are sometimes referred to as the entering and exit pallet. The entering pallet is the one that arrests the escape wheel tooth before it enters to pass through, and the exit pallet is the one that lets the tooth pass out. The entering pallet is also known as the receiving and the exit pallet is known as the discharge. Also referred to as "R" and the "L" pallet stones, right and left.

WR: Occasionally I have tough luck when removing a ratchet wheel from some of the Swiss watches. The ratchet wheel is so tight that I quite often break off the head leaving the rest of the screw in the barrel arbor.

Answer: You are not alone in this experience; however, you might save your-

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self some time and trouble by turning the screw clockwise. In some cases these are left handed screws, and it is possible that your hard luck has come about by tightening the screw rather than loosening it by turning the screw in the wrong direction. To remove the broken end, it is very helpful to place a drop of penetrating oil over the broken end—letting it remain a few minutes and slightly heating will aid the oil to penetrate faster.

Then mount the arbor in a lathe, and with a sharp pointed graver hold the point against the broken end. The graver must be well supported having the tool rest close to your work, and by turning the lathe by hand you will quite often find the broken end can be readily removed. If this method is not successful, heat the barrel arbor to a blue temper, then mount barrel arbor in the lathe, spot a center in the broken screw and select a drill that is just large enough to drill out the plug, but not so large as to damage the screw threads. If a shell still remains in the arbor, a three-sided reamer may be forced into the plug then the shell itself will readily be released and backed out. If the arbor is heated beyond the blue color, it should be hardened by heating to a cherry red and quenched in water. Clean the surfaces and re-heat the arbor very slowly until a deep blue color is obtained, and it will then be back to its original condition. A stick of boxwood charged with diamantine will readily restore the polish.

CO: I quite often run across a watch crown where the threads are stripped, but otherwise would be useful again if one could re-tap them for a larger size stem. I also have a lot of crowns which have the broken end of the stem in them. Can you suggest how I can re-thread the crowns, and how I can remove the broken part of the stems from the crowns so I can use them again?

Answer: You can procure from your jobber a special tool for holding the crown while opening the holes for re-threading. A set of taps and drills for all standard size stems are included. This is a very handy tool, and will pay for itself in a very short time. The steel plug can be rusted out of the crowns by placing them in a warm solution of alum in water, and occasionally scraping out the rust, as it accumulates for faster action, or you can use a solution of 90% water and 10% sulphuric acid. This solution will also remove the steel plug by rusting without any damage to the crown.

JO'K: I have been told that a balance wheel out of flat and out of poise can keep time in the dial positions. Is this true?

Answer: It is true that a balance out of flat will keep time in dial positions providing that the watch is laying perfectly flat, but if the watch is a least bit out of flat then gravity will not be equal and have its effect, the same as it would if the watch was held in pendant position, but not so decided. The balance can be out of flat; however, if it is properly poised, it can keep time. A balance left out of flat is not a mark of good workmanship.

CEB: I just opened a repair shop, and have been fairly successful, but have run across what the owner calls a ship's bell clock. It was taken apart and cleaned by me, but when I came to assembling it, I could not figure out how the ship owners tell time by the striking of the bells. Will you explain how the striking mechanism should be arranged and how the bells should be struck to tell the time?

Answer: There are three 8 hour periods for watch on board ship, and these periods change at 12, 4 and 8 o'clock, and for each half hour a bell is added so that at 12:30 your clock should strike one bell, at one o'clock 2 bells, at 1:30 three bells, at two 4 bells, at 2:30 five bells, at three 6 bells, at 3:30 seven bells, and at four o'clock 8 bells. The same sequence is then repeated starting at 4:30 and 8:30. I am at a loss to give you any instructions as to the mechanism as you do not state what make of clock you are working on.

MGR: How is the overcoil formed for a watch? So far I have not had much success. Must one have special tools for the operation or is it possible to do it with ordinary tweezers?

Answer: There are two ways of doing this. One is to use a special pair of tweezers and bend the spring up edgeways, and make a second similar bend to set the overcoil flat. This method makes a sudden "step" into the spring. The other way

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is to gradually raise the outer coil, beginning about a quarter turn before the point at which it is required to curve inwards, so as to insure freedom between the coils.

The first method at once raises the overcoil to its maximum height, and it may be curved inwards from the upward bend as a starting point. The second method produces an overcoil that gradually rises throughout the first half of its length, the last third of a turn only being level and of full height. Curving inwards cannot be commenced until the outer coil has risen well above the body of the spring, hence the necessity of beginning the upward bend a quarter turn before the true overcoil commences.

AWC: I am interested in knowing who made the first American watches.

Answer: There are no records as to who actually made the first watches in this country. Soon after the constitution of the United States, several watchmakers in this country no doubt began to make watches for their own trade in their communities, as all the early watches before production entered the picture, were handmade by importing parts then finishing these watches by hand.

The first manufacturer to build watches in quantity was Luther Goddard of Shrewsbury, Massachusetts, who began making watches by 1809. Even then Goddard did not make the entire watch outright, but imported plates and parts in the rough from England, then finished and installed the train and escapement and otherwise finished the watches complete in his own shop. At this rate he managed to turn out watches at the rate of one complete watch per week until 1817 when he could no longer compete with foreign competition.

ORC: I have an old English watch made by Simon Baker of Limpsfield, England, and it has a peculiar escapement. On the balance staff are two small flags that contact a very small escape wheel, the escape wheel and pinion are placed horizontally under the top plate. The watch needs a new hairspring, and I am at a loss to determine what strength of hairspring to fit into the watch, as I do not understand how to calculate for the beats of balance in this antique watch. Can you explain how to do this and how old the watch is?

Answer: Our records show that Simon Baker conducted a watch shop during the early 19th century, and from the description you give, it has what is known as a verge escapement, quite common to all early watches. In fact, the English continued building watches with verge escapements up to as late as 1840.

To determine the vibrations the balance is to make, multiply all the teeth by themselves beginning with the center wheel, third wheel, fourth wheel and escape wheel, and multiply the result by 2. Multiply the number of leaves in the third pinion by the fourth pinion and by the escape pinion. Divide first results by your latter results and then divide by 60. This will give the vibrations the balance is to make per minute. In these early watches the hairspring was very light and only had 4 and 5 coils.

HP: When would you say it is o.k. to close a worn hole in a watch or old clock plate, and when should a bushing be fitted if the hole is to be right again?

Answer: In general, there are 2 methods: (1) closing, and (2) bushing; and there are variations of each. Which method should be used depends partly upon how much too large the hole is—on how much it is worn; partly upon its position; in part upon the condition of the plate round about the hole. The plate may previously have been so punched and "butchered," for instance, that only bushing will restore it in a workmanlike manner; or the pivot hole may come so close to a recessed or cut-away portion of the plate that the use of a punch in closing would only spread and mar the plate without making the new hole satisfactory.

How, then, can we tell whether to close a hole or bush it? Hole closing should be resorted to only when the wear to be remedied is comparatively small, so little that the worn holes are still round; and, further, when the plates of the watch or clock are thick enough and solid enough to stand punching without bulging; without the hole itself being made so short by punching that it will no longer afford a sound bearing for the pivot. Some plates, in both clocks and watches are a good deal harder than others. They withstand wear better

when hard, and when hard they admit of hole closing.

CSW: I have read with a great deal of interest your articles in the A. H. & J. They are much help. I would like some help on a demagnetizing problem. Can you supply the specifications for making a good strong demagnetizer that will remove the magnetism in small tools as well as the small bracelet watches? I would appreciate it very much. The demagnetizer that I am using now is an old one and has been used a long time. I have tried every possible way to remove magnetism from screwdrivers and other small tools, but it will just not remove it. The compass is affected by the watches and tools no matter how many times I insert them. I have tried moving the articles away at a slow rate and a fast rate, but nothing helps. Could it be possible the demagnetizer is no good after a long period of use? Is it at all possible to construct a demagnetizer?

Answer: Our electrical engineer recommends the following instructions to build a demagnetizer that proves very satisfactory: Make up a core of round or square opening from thin wood, plastic or a large round mailing tube. Whether square or round, the opening can be 2½ inches, the length 2 inches. To either end fasten flanges possibly ¾ larger than the tube itself—these flanges are to hold the wire in place. Then wrap 5 pounds of 22-gauge enameled copper wire around the core, allowing the first coil or end to extend through the flange to make your connection. When the wire is finally wrapped around the core it may be covered with friction tape, then install a push button switch in between the core and main line. This switch is to be used when the demagnetizer is in service.

Demagnetizing some of the late model Swiss watches has proven to be a problem to all of us, especially when we try to demagnetize the watch as a unit. Your writer has had similar experiences and at times found it necessary to remove the hairspring from the balance, cover it with oil, and wrapping in tissue paper, passing it through the demagnetizer. This very often does the trick.

Another method that works very well occasionally is to lay the hairspring on a piece of sheet iron and then pass it through the demagnetizer. Another method is to slip a piece of straight hairspring in among

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the coils of the hairspring proper while it is still in the watch. This method prevents the coils from vibrating. I have also found watches in which it seemed impossible to remove all the magnetism, however, what little remained in all these cases or methods was not detrimental for commercial timekeeping.

VLO: Do the watch factories have a breaking in period for the new watches before they are delivered to the jeweler?

Answer: The watch companies do test all watches for timekeeping tolerances in different positions as well as to test them for the length of run and for meantime tolerances allowable for the different grades so when a watch leaves the factory it has been inspected and tested for the consumer's use. It might be that the term you heard of breaking in periods has a different angle. For instance, a watch may lay in stock for some time and the oil has become settled. To deliver the watch and ask your customer to call in the next day for checking and regulating the watch may not prove satisfactory.

It would be better to advise your customer to carry the watch for several days before attempting to regulate it, as that may be termed the "breaking in" period for the oil to become settled and located in the pivot holes. After the "breaking in" period you would then be pretty safe in regulating the watch and have it respond to the regulator as there will be no change in oil conditions after that as you term "breaking in" period.

WHB: How can I ascertain vibrations of balance to select the proper hairspring without taking the watch apart, counting the train wheels and pinions, and then doing a lot of mathematics to get results?

Answer: Sometimes a watch is cleaned and put together before the want of a new hairspring is discovered. The spring may have been broken and re-pinned by some previous workman, thus causing the watch to gain, and can only be replaced by a new one, or in other instances a bad spot of rust may be discovered on it. In such cases, it is desirable that there should be some method of ascertaining the train without taking the watch apart and counting the wheels.

If there is a seconds hand, proceed as follows: Allow the escapement to run through until the hand points to 30, 0, or some definite starting point; with a needle-point, pass the lever carefully across from one banking to the other for 20 seconds, counting the number of beats required; multiplying this by 3 gives the number of beats per minute and the train. If there is no seconds hand, make a dot on the fourth wheel rim and count the beats for an entire minute taking note when the dot comes exactly to the same position again.

JHL: When replacing a roller table is it proper to place it so the roller jewel will be at right angles to the balance arm?

Answer: Attaching a roller table so that the roller jewel is at right angles to the balance arm makes it more convenient for the workman to inspect the action of the roller jewel as it enters the fork slot, better known as corner freedom. It is also more convenient to test the jewel pin shake and guard pin shake, as when making these inspections, the balance arm does not come into position to cover or interfere with seeing the actions as they take place.

SCL: Will you please answer the following questions: What are the chief advantages claimed for an overcoil hairspring? What is the cause when the oil between the balance hole and cap jewel will not form a circle? Does altering the positions of the bankings change the drop lock?

Answer: The advantage of the overcoil hairspring is that as the coil expands or contracts equally in all directions, the balance pivot is held in the center of the jewel, eliminating side friction, where in the case of the flat hairspring which can only expand or contract in one direction, it causes the balance pivot to be forced against the hole jewel creating side friction. Then again, an overcoil spring that is truly centered will develop equally in all directions, having center of gravity pass through the center of the spring and through the center of the balance jewel regardless in what pendant position the watch may be carried.

We might say the hairspring remains in poise in any position, where a flat hair-

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spring causes excessive side friction and can only develop in one direction, the center of gravity fluctuates from one side of the pivot hole to the other. Better isochronal rates can also be had where the overcoil hairspring is employed.

The cause of oil not forming a circle around the pivot hole or pivots can be attributed to the cap jewel not lying flat or the face of the balance hole jewel not being parallel with the face of the cap jewel. If there is any difference in the distances of space between the two jewels, capillary attraction will draw the oil away from the pivots into the narrowest space. Altering the position of the banking screws will not have any effect on the amount of drop lock. It will, however ,increase the slide, and the total lock, when the banking screws are open, will be greater. By opening or closing the banking screws, you change the angular motion of the lever, but it does not change the drop locks. You merely increase or decrease the slide and total lock.

* * *

The following information was received from Dr. Percy L. Small, president of the National Association of Watch and Clock Collectors, New York chapter:

Referring to your request for further information concerning the Keyless Watch Company of New York in your Information Please department of A. H. & J. for March: These watches appear to have been made by the so-called Newark Watch Company of Newark, N. J., of which Arthur Wadsworth was superintendent. He was the inventor of, and held the patent on the keyless mechanism which was dated June 19, 1866.

It is interesting to note that this Arthur Wadsworth was the grandfather of Arthur W. Wadsworth of Dayton, Kentucky, present president of the Wadsworth Watch Company, subsidiary of the Elgin National Watch Company. John Wadsworth, production engineer of the Dayton plant and son of its president, represents the fourth consecutive generation of this family actively engaged in watch and watch-case making in this country. If required, further information may be found in an article by this writer in the December, 1950, Bulletin of the NAWCC which was a discussion of a paper on the Newark Watch Company by Dr. W. Barclay Stephens in the February, 1950 Bulletin.

* * *

The following is from G. H. Cooper, jeweler of Aledo, Illinois:

I noticed in your column of the A. H. & J. you advocate using vaseline and oil mixture for stem and winding part lubrication. From my own

experience, I find KT-22 by Troop Balas & Company to be far superior to the vaseline and oil mixture I used until KT-22 came on the market. The anti-rust properties of that grease would amaze you. We have a high percentage of farmer's watches, and I'm sold on KT-22. Try it.

* * *

THE FOLLOWING LETTERS REFER TO FJJ'S LETTER IN THE MARCH, 1954, A. H. & J.

In reference to FJJ's letter in the March issue regarding the watchmakers joining with the American Federation of Labor, I feel it would be a great mistake. We need no one to dictate to us, telling us what prices we must charge, what hours we should work, whether we should quit working altogether and picket some poor soul because he wants to put in a mainspring 50c cheaper than the others.

No! ours is an independent business and we want none of the pushing around that other workers get from these organizations. We have nothing to fear from the man who wants to cut his prices. I have found that good workmanship will bring a man all he can do regardless of his competitors' prices.

Some may say the unions will help the man who is employed. I fail to see in what way. All the watchmakers I know who work for a jeweler are well paid and well satisfied with their conditions. No! let the unions put their iron hands on the other professions but leave us alone.

HERBERT W. ROGERS

* * *

I am strictly opposed to the article of FJJ on page 32 of the March issue regarding the watchmakers association affiliating with the American Federation of Labor.

The labor organization has done well in many fields, but I hardly think it would in ours.

If I am off a day or I am sick a few days my pay is the same. If I am late to work in the morning or if it is necessary for me to step out for a few minutes during the day my pay is the same. If I repair one watch or if I repair six watches in the run of a day my pay is the same. BUT, would my pay be the same if I belonged to the Union. I have a feeling that my pay check would come up short at the end of the week.

Out of twenty-five years at the bench I have never had one single disagreement with my employer. Should I belong to the union and there should be a disagreement it would be necessary for someone higher up in the union to settle the argument and this I am opposed to. If they can't get together then I would have to go on a strike and my pay check would be short.

I remember here in Chattanooga of September 1952, there were a few that wanted to start a union. The watchmakers association heard of it and called a meeting asking every watchmaker whether he was a member or not to be present.

Facts were pointed out as to why we did not want a union. The following evening we met at the Union Labor Temple to listen to the union official give facts as to why we needed a union.

One week later we met and discussed the matter and had a vote as to whether we wanted a union or not. There were nine for it and the rest opposed. Those nine that wanted a union were not members of the watchmakers association.

I would like to urge that all watchmakers become members of their nearest watchmakers association and attend regularly to better yourself to serve your employer and the public.

H. C. JOHNSON

Coming Conventions, 1954

June 27, 28—New Hampshire Retail Jewelers Association Annual Convention, Wentworth-by-the-Sea Hotel, Portsmouth, New Hampshire.

July 25-29—NJA Annual Convention and Jewelry Fair, Conrad Hilton Hotel, Chicago, Illinois.

August 8-12—ANRJA Annual Convention and Trade Show, Waldorf-Astoria Hotel, New York City, New York.

September 4, 5, 6—United Horological Association of America Annual Convention, Jung Hotel, New Orleans, Louisiana.

September 12—Retail Jewelers Association of Missouri, Inc., Annual Convention, Governor Hotel, Jefferson City, Missouri.

September 12, 13, 14—Minnesota Retail Jewelers Association Golden Anniversary Convention and the Eighth Annual Jewelry Trade Show, Nicollet Hotel, Minneapolis, Minnesota.

September 19, 20—Iowa Retail Jewelers Association Annual Convention, Hotel Fort Des Moines, Des Moines, Iowa.

"Some 'guy out front said as a watchmaker you'd make a good plumber!"

Watchmakers' Contest

A.H.&J. Reader Ideas on Practical Bench Methods, Experiences or Tools.

A.H.&J. is pleased to announce the following winners of its second month's (April, 1954) Watchmakers' Contest.

First prize: Arnold waterproof-case opening wrench, plus one movement holder goes to Mr. Jean W. Francis, P. O. Box 905, Buckeye, Arizona, for his "Hairspring Tool", Contest Entry No. 7.

Second prize: Set of 6 Algren jeweler's screwdrivers, type IV, plus one bench block goes to Mr. Carl F. Bonebrake Box 627, Dighton, Kansas, for his "Pith-O-Lator" or Jewel Wiper, Contest Entry No. 9.

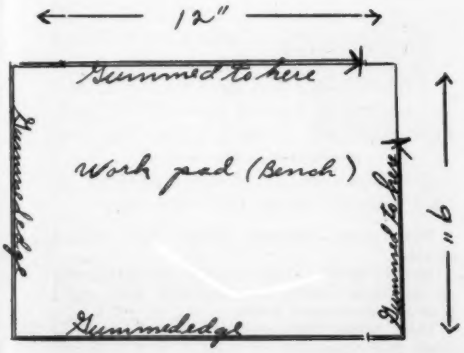
Third prize: 72 piece assortment SwissCraft Swiss chromed crowns goes to Mr. Joseph T. Book, 5130 Thirty-Third Avenue, Kenosha, Wisconsin, for his "Thimble Tool", Contest Entry No. 8.

WORK PAD (BENCH)

CONTEST ENTRY #10

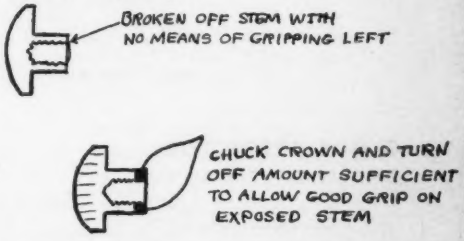
This article which I had made up for my own personal use, and one that I find is one of the handiest on my bench, is a work pad similar to a typewriter paper pad, except that it is about 1" longer and 1" wider.

It holds 60 sheets of white, hard-finished lintless paper, about a two month's supply when removing one sheet at a time at the beginning of each day; thus, having a clean surface at beginning of work or whenever desired. The pad has been gummed on all four edges except for one corner which is left ungummed so that the top sheet may be removed easily. Heavy stiff cardboard for the bottom will keep the pad flat.



REMOVING BROKEN CROWN STEMS

CONTEST ENTRY #11


BROKEN OFF STEM WITH NO MEANS OF GRIPPING LEFT
CHUCK CROWN AND TURN OFF AMOUNT SUFFICIENT TO ALLOW GOOD GRIP ON EXPOSED STEM

On occasion a stem will break off in a crown to such an extent as to be even with the pipe, thus leaving nothing to get a grip on so as to remove the broken stem from the crown. Attempting to drill out the stem results in drilling off center at times, and ruining the pipe or threads on the crown.

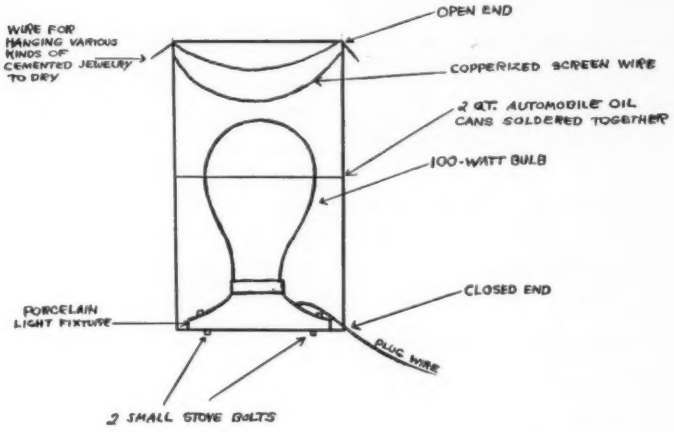
I have found that by chucking the crown in a crown chuck and turning off just enough of the pipe down to the stem to get a grip on the stem, I can successfully screw the stub out and thus save a crown easily and quickly with no chance of ruining it. This, I found, is not only good economically, but is good when one runs across a case with an extra large case pipe (such as waterproof models) and no crown to fit is available (providing the customer managed to save the crown).

Perhaps this will be an aid to someone who is wondering what to do with all those crowns like this if he saved them.

BENCH HEATER

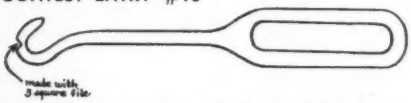
CONTEST ENTRY #12

I have built myself a bench heater that has been as efficient as high priced heaters, and I am sending a sketch. This might be of interest to other watchmakers and jewelers, as many of us are not able to purchase a high priced bench heater.



CLOCK ARBOR TOOL

CONTEST ENTRY #13



Here is my entry for the Watchmakers' Contest. It is a tool made from an old button hook, and used to push and pull clock arbors into pivot holes while assembling the movement. The notch in end of the hook is made with a 3-square file.

OPENING WATERPROOF CASES

CONTEST ENTRY #14

There are many types of waterproof case openers on today's market—I have several myself, and not one is 100 per cent foolproof. They all scratch the back of the case if they should accidentally slip.

I may have an old idea here, yet I have never run across a watchmaker who uses it. I find it wonderful and have had 95 per cent more success with my opener than any other, yet it never, never scratches a case.

I use the last four inches of a broom handle as a tool, ordinary sealing wax, one wooden movement holder to have a firm grip on the watch, and an alcohol lamp. I heat the sealing wax until it is melted and spread it on the flat end of the handle; I always use enough. I advise also heating the case slightly so as to get a better hold, then press the wax handle to the back of the case, and allow to cool. It may slip off if it is not cool enough.

After cooled (15 minutes is sufficient), apply a steady turn pressure and the case will come open. The remaining sealing wax on the back can be easily chipped off, and the rest wiped off with a rag saturated with denatured alcohol.

This method I find more successful than in using a tool costing up to $15.00 and, most important, it won't scratch the case.

1-2-3 winners of contest entries in this month's issue will receive:

First prize: Balance truing and poising clipper.

Second prize: 12-piece lathe set consisting of grinders, buffs, brushes, and end mills, plus one movement holder.

Third prize: Parts cleaning holder, cleaning brush and case rest.

CLOCKWISE...*and*...OTHERWISE

By J. E. COLEMAN

OTHERWISE

This marks another anniversary—the seventh—for Clockwise & Otherwise. Friend George Martin usually cooks up a small sketch for the occasion, but we've not heard from him this time on that item. Maybe he is going to omit it, and maybe he has another idea, but I'll bet you he knows that it's round eight that's coming up.

Ed. Note: Here 'tis, Jess. Following sketch contributed by Friend Virginia. Happy anniversary from the entire staff of A. H. & J.

Shortly after we did the anniversary Otherwise last year, we were privileged to announce the location of a clock factory in Tennessee. A couple of columns later we promised that "if and when" this new factory had a formal opening, Jan and I would cover it, and still later, we renewed that promise when we had direct word from President Fred Lux that such an opening was scheduled for the spring of 1954.

On March 25 came the definite announcement, etc. It read: "The Lux Clock Manufacturing Company announces the dedication of its Tennessee branch at Lebanon, Tennessee, April 5, 1954. You are cordially invited to attend as our guest; 3 to 4 p.m., plant tour; 5 to 6 p.m., refreshments at plant; 6:30 p.m., banquet at Lebanon Golf and Country Club. R.S.V.P."

The fifth was a balmy spring day—plenty of sun making it ideal for driving, and had you been with us you would have found it most difficult to judge whether it was Jan or I who traveled with the greatest degree of enthusiasm for the events to come—we'd talked of it many times during the past five months. The return journey would have been practically the same—it was a toss-up as to which enjoyed it the most. We are both deeply grateful to President Lux and Manager Joe Atkinson for an afternoon and evening

Mr. Coleman invites your questions. If your question requires a direct answer, please enclose a self-addressed, stamped envelope. It is impossible through correspondence to give valuations of antique timepieces; questions of this nature cannot be answered

long to be remembered.

The Lux Company, founded in 1912, is the world's largest maker of precision timing movements for industry. Their production is split an even dozen ways: 1. Spring-wound alarm clocks (when completed, the Lebanon branch will account for this entire line); 2. Novelty clocks; 3. Minute Minders; 4. Travel and auto clocks; 5. Range interval timers; 6. Electric clocks and timers; 7. Automatic toaster timers; 8. Washing machine and dryer timers; 9. Interval time switches; 10. Pressure cooker timers; 11. Recording instrument movements; 12. Parking meter movements.

The factory is located on a lot which fronts the highway for 700 feet. The office portion is constructed of red brick, is two stories high, and white trimmed. The factory building proper is all one level, thoroughly modern, air conditioned throughout, and is heated by natural gas. At present it contains 25,000 square feet of floor space and there are now 125 employees. They have a total potential floor area of 200,000 square feet and expect to be in full production by July first.

The 3 to 4 p.m. plant tour was everything that could be desired along that line —it was still in full operation (employees clock out at 4). Our section was conducted by Fred Detlefsen, plant superintendent (formerly of Waterbury, Connecticut, now resident of Lebanon) who was especially courteous, and went to great length to carefully answer any and all questions that weren't covered in the general explanations of the various operations.

We well know from past experience that this otherwise could not carry a detailed description of the complete trip through the plant, and thus decided to concentrate on the one feature that might prove the most interesting to our readers. Based on the trend of questions from practical repairmen following previous clock factory tours, that had to be timing. Today's bench man is strictly timer conscious, and either asks what kind of timer do they use, or how do they vibrate the hairsprings?

Figure 1 shows this device. The master

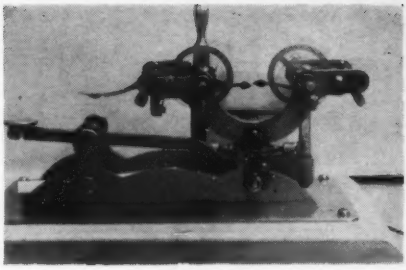


Fig. 1

balance and hairspring is on the right, the one undergoing test is on the left. The balance assembly is already complete when it reaches the timing operator, that is, the balance staff has already been staked in, the roller pin staked in and the hairspring set on; her sole duty is to determine the pinning point.

The little lever sticking straight up directly behind the balance to be tested carries the back balance bearing (these are cone bearings identical in size with the steel cone bearings in the finished clock, but are of jewel material). It is held to place by spring pressure, thus pressing it straight back (away from the operator) spreads the bearings for the insertion of a balance. The middle lever to the left (halfway between it and the one on the extreme left) is a spring clamp to receive the end of the hairspring.

The larger lever to the extreme left is connected with two small members which will ride with friction on both balance staffs. A flick of this lever with the little finger of the left hand of the operator, very much in the style of a typist, kicks both balances off in unison; since both hairsprings are attached to the indicators or "hands" (in the center between the two balances) these hands move up and down with each motion of the balance. Being started off "in step" the operator can quickly detect whether the balance being tested is beating faster or slower than the master balance. Naturally, if it's slower, she takes up on the hairspring; or if faster, the hairspring is let out a little until the indicators march together. I believe they said for twenty full beats—another flick of the finger and the end of the hairspring is bent over its clamp, the timing operation is complete, and another balance is

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set in.

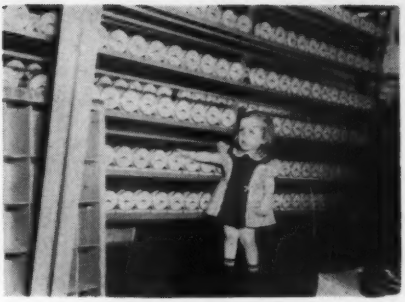
The outstanding feature of this timing operation is the speed and skill of the operator, and I'm sorry I did not make a note of her average per hour—it certainly looked awful fast. I'll do that next time.

I have one other question. It is self-evident that this device was engineered for speed of operation. Now I'm wondering whether or not a left-handed operator couldn't turn it around, and operate it from the other side with the same ease that a right-handed operator does as it is presented in the photo?

The factory feature that impressed us the most was a conveyor to hold the clocks during the regulating period. This conveyor is tended by two operators, each taking one-half the shelf which is over all 24 clocks long. These shelves swing in much the same manner as the seat on a ferris wheel, thus the clocks are in an upright position at all times. (See Fig. 2).

Fig. 2

From the point of our photo the shelves are ascending, the two operators are stationed directly behind this point, and at the end of the production line, thus from their side the shelves are descending. They simply pick a clock from the line, quickly wind it with a little hand crank that fits over the key, set it and place it on one of these shelves. By the time a shelf is loaded, it has descended just about the distance between shelves, and an empty shelf is in place ready for its load. There is more than meets the eye in this system; it was devised by Fred Lux and perfected by his staff shortly after World War II when it was found that a large percentage of floor space was devoted to shelves for regulating the clocks.



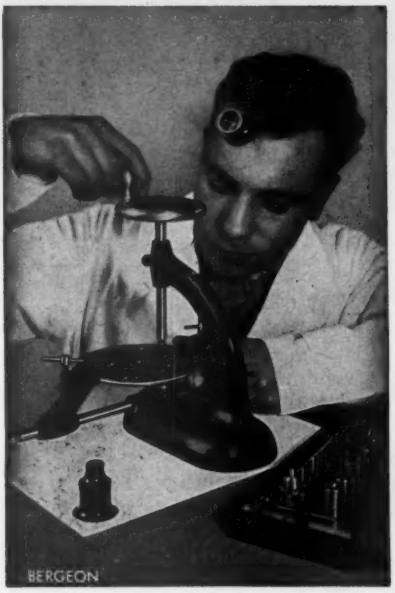
Jan with completed clocks

This conveyor ascends from the point in Figure 2 up to the ceiling and thence along the ceiling to the end of the room and back. By such a method, it is possible to run thousands of alarm clocks daily for a 24-hour test period, and the amount of floor space used for the regulating process reduced to the absolute minimum. At the return end the clocks are removed and checked. Those that time-out within the tolerance are set over onto another (short) production line belt, and are carried to the operators for boxing and packing.

Throughout the entire plant one is impressed with speed and mass production methods. These are the main points enabling Mr. Lux to produce alarm clocks at a low per unit cost, yet he does not permit mass production to adversely affect the quality of the clock. Careful figures kept over the years indicate that the percentage of returns have averaged less than 1 per cent, and this 1 per cent figure includes returns due to droppage.

Early in the beginning, the very first year, I believe, Paul Lux, father of the present president, posted in the Waterbury factory a sign, "Our Clocks Go or We Go." This motto has dominated the actions of the company throughout the years, and like signs were evident in the Lebanon branch.

At the dedication banquet given by the company at the Lebanon Golf and Country Club for more than 100 specially invited guests, Herman J. Weisman presided as master of ceremonies and, following a typical Southern fried chicken dinner, Mayor William D. Baird delivered the address of welcome. President Fred Lux responded. Edward Potter, president of the Com-



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merce Union Bank (Nashville) introduced the speaker of the evening, Governor Frank G. Clement.

Mr. Lux emphasized the obligation of an industry to its employees, whom he designated as "people on our team," and to the community in which they live. Governor Clement discussed the work of his newly-created Tennessee Agricultural and Industrial Development Commission, pointing out that since it started to work, Tennessee's increase in disposable income over the previous year is greater than any other state in this area.

He said, "Tennessee's greatest resource is her people, and the recognition of their ability by industry has been responsible for much of the state's recent growth."

After the banquet, guests were presented with a clock from the plant's first day's production, a regular Claridge model with special lettered dial: "From the first day's production at our plant in Lebanon, Tennessee, January, 1954." The bezel, handsets, back keys and alarm knob being gold plated. A fitting memento for a memorable occasion. Jan and I prize hers highly as a definite addition to her collection. (See

Pres. Lux presents Jan with a clock

cut directly above).

* * *

A splendid letter from Homer D. Schoen, Clock Sales Division of Sessions. He is very enthusiastic about Sessions' new model motor. He says, "After long and exhaustive experiments and tests, they have found a silicone lubricant by Dow Corning to be ideal for long continuous years of quiet operation. To make the best possible use of this lubricant, Sessions has redesigned their motor to enlarge the

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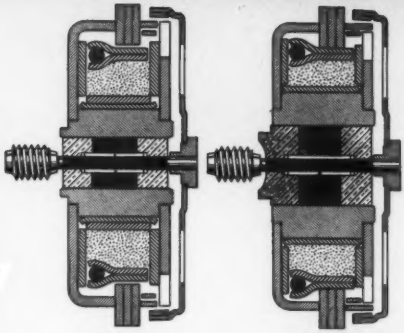

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* * *

Most enjoyable visits with Curtis L. Micke, sales director for L. & R. Manufacturing Company (cleaning machines and solutions) and F. H. Monson of the Precise Timer Company (makers of the Burton Reid Timer, Harrison, Michigan) and a long distance phone conversation with friend Paul Blanchat (Wichita, Kansas). He is one collector with an eye single to accuracy—keeps 'em all running—checks them closely and will only tolerate the smallest of errors.

We discussed his latest find, an exquisite astronomical regulator with gravity escapement made by E. Howard. We've serviced a couple of Howard precision regulators, and have had the privilege of examining others, but no gravity escapements. I am therefore wondering about their production. Any of our readers recall seeing one? I believe Mr. Barny once told me that he had only one. There must have been only a few made and, of course, still fewer in operation this date. Has anyone an idea as to where and how to locate definite, accurate figures on the actual number produced?

* * *

An airmail letter just received from London bearing the sad news of the passing of Arthur Tremayne, governing director of the N.A.G. Press, Ltd., and editor

of the British Horological Journal—the oldest English horological publication (96 years) in the world. Horologists throughout the entire world have lost a champion, and C. & O. has lost a true friend.

We were never privileged to meet him personally and shake his hand, but over the years he has sent many a long and chatty letter, some before there was a C. & O., and after it became a regular feature, he rarely missed a month. His passing leaves a void which won't be filled.

If we recall correctly, it was while doing the May Otherwise last year we got word of the death of Henry Paulson. He and Mr. Tremayne were close friends, and when last visiting the U. S. A., Mr. Tremayne was his guest. J. & J.

CLOCKWISE

Dear Mr. Coleman:

As a reader new to your section in the American Horologist & Jeweler, I found it very interesting. As a student watch and clockmaker and repairer, and jeweler, I would be pleased if any of your readers would exchange with me used watches and clocks or movements for new watch or clock material or tools, or other goods.

I would also be pleased if you or any of your readers would write to me and give me details for making wooden clock movements. I would like to have "pen" friends interested in watch and clockmaking and repairing, and in jewelry making.

I hope you will be able to help me through the medium of your magazine. By the way, is it possible to make an alarm clock into a striking clock instead of an alarmer? Could you give me details?

JAMES HODGINS

Templemore Road
Cloughjordan County, Tipperary, Eire

Dear Mr. Hodgins:

We appreciate your letter, all the way from Ireland, a lot. Details for making a wood clock would consume more space than several columns or a dozen letters. Either the Kuempel Chime Clock Company, 3601 Brunswick Avenue, South, Minneapolis 16, Minnesota, or Popular Homecraft Magazine, 154 East Erie Street, Chicago 11, Illinois, can supply you with prints and instructions for making a long pendulum wood movement.

Your suggestion of exchanging movements, etc., is something new to the column, therefore we've had no actual experience along that line. On first thought it might be well if both parties exchanged letters first, in order to make sure both fully understand all the details. As for pen friends, you already have one. Yours truly would especially like to know about clock repairing in Eire, tools, material supply, prices, general customs, etc. It is self-evident you have American trade journals. Do you have many American horological books in circulation there?

It would be highly impractical to try and convert an ordinary alarm movement into an hour striker; about the only useable part would be the bell. A strike train with suitable count arrangement (either rack or snail or count wheel) would have to be built from "scratch" (in its entirety).

Naturally, all you have in mind isn't clear from your one short question. If you are on some building project, and do not propose to house the striking clock in the original alarm clock case, i. e., if you have ample room in your proposed striking clock, why not salvage the complete striking train from some old movement and repair it? Then you might make and install a lift (or trip) on the center post of your alarm movement, and have it trip the strike by means of a small wire connection. This could be done and still preserve the alarm in case you need the use of it, or the alarm train could be removed from the alarm movement and discarded.

J. E. C.

Dear Mr. Coleman:

I have some questions concerning an Eli Terry clock for Clockwise and Otherwise. My clock has four teeth broken from the time main wheel, and if I can't get a wheel from Seth Thomas, where could I get one made? If I have to repair the broken wheel myself, what kind of wood should I use? The hands are lost—what kind of hands did it have? What were they made of and what year was this clock made?

If I want to sell this clock, where could I contact a buyer, and is this model plentiful now?

ROYAL W. WILSON

Wilson's Jewelry
Newton Grove, North Carolina

Dear Mr. Wilson:

Wood movement clocks haven't been produced since the great panic of 1837; that makes the youngest of them at least 120 years old. We seriously doubt that replacements parts, as you and I think of them, were ever available, not even at the highest point of wood clock production. Certainly none have been available for years and years.

See the wood reply to Mr. Joseph Verruni in this very Clockwise, and should you desire to have a new wheel cut (to match the old), there is a splendid specialist on wood movements within approximately 100 miles of you. Write to Mr. C. E. Hale, 117 West Market Street, Johnson City, Tennessee.

J. E. C.

Dear Mr. Coleman:

First I want to tell you that I am a regular reader of your articles, questions and answers in the American Horologist & Jeweler. It's a great job you're doing, and I wish to compliment you.

Now for my problem. I have done quite a bit of clock work, but have never had the occasion to work on or repair the wooden movement Terry clock. I would like to know what peculiarities I should be on the lookout for. Also, the cleaning solution to be used, the drying process and what to do about rebushing if it needs it. If it calls for a particular type of oil, of course I would like to know what type.

Any information that you can give me will be very much appreciated.

JOSEPH C. VERRUNI
113 West Lancaster Avenue
Wayne, Pennsylvania

Dear Mr. Verruni:

There has been so little written on cleaning the lowly wood clock, that I doubt anyone could point to any particular method or action as being standard procedure and prove it. First off, the mechanical action does not differ from any found in the brass movement. You look for the same things, i. e., broken parts, wear and butcher work.

On the cleaning, I can only give you my own method despite the fact I may be sticking my neck out. However, it is based on experience and I guess I average between 30 and 40 wooden movements per year. I'm not too enthusiastic about wetting either the plates or the wheels, and upwards of 50% of my jobs get "dry cleaned." We run into many of them that have been well cared for—plates not soaked with oil, etc., and a good dry brushing (sometimes includes the use of fine wire wheel brush on polishing motor) mixed with razor blade scraping, turns up a practical job good for years of satisfactory running.

With movements ultra dirty and/or oil soaked, sometimes both the plates and wheels get the full treatment, that is, through the regular cleaning solution and a quick hot water rinse. Both the cleaning and the rinse should be as quick as possible. There is no point in soaking, and it is surprising how little moisture they take up if you do the operation fast enough. I use a bone handle scrubbing brush with the cleaning, etc.

As to bushing, some say to use a hard wood like close-grained maple, but I generally use brass, but in using brass I vary the method a bit. Namely, I do not insert from the inside as with brass plates, and never let it come flush with the inside surface of the plate. My reason for that is the lubrication. If wood is used, it is finished flush with the inside of plate and the bearing run dry (without oil). With a brass bush, you have the steel pivot running against metal and some lubrication is definitely indicated. Brass bushes are turned up on the lathe leaving a flange to go against the back side of the plate. This flange is made as small as possible and drilled with three holes to pin it against and in the plate. The bush is countersunk so that the actual bearing surface is approximately ½ the thickness or slightly less of the plate. The inside end of the bush is tapered so that at its very inside end, it is but slightly larger than the pivot hole. By having this inside end set slightly below the surface of the inside and by its being tapered, the hole in the plate at this point remains much smaller than the shoulder of your wood arbor. Whatever thrust takes place is no greater than when the clock was new. Now you can readily see that when your arbor thrusts

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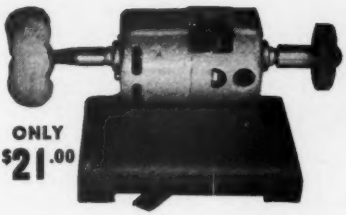

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or works against that plate by reason of the inside end of the new brass bushing being below the plane of the inside of the plate, the end of the wood arbor cannot work against the bushing and siphon out the oil. When oiling these bearings, always do it sparingly, never too much.

The greatest trouble you will encounter will be broken teeth in wheels and broken leaves in pinions. In most instances with broken pinions, it is best to turn-up and make new arbor and pinion. With wheels, unless there is more than, say, half a dozen teeth broken off, a new piece of wood can be dove-tailed in and new teeth cut. This is a simple operation and with a little practice you can become quite proficient. Obtain one or two small screw C-clamps from your 5 & 10 or hardware store, select the piece of wood (I use apple that has been seasoned for more than 20 years), cut it to the thickness of the wheel or just a little thicker, turn it so the grain runs with the teeth you intend inserting and clamp it to the wheel with one or both clamps. Take a very fine jeweler's saw and cut your dove-tail plug through both the piece and the wheel at one sawing, then the new plug fits. Insert the plug with a good cabinetmaker's glue, preferably hot (though some cold water glues are good), and allow to dry thoroughly, at least overnight, but 24 hours is better.

Saw the plug to the full diameter plus. Mark and saw the teeth (get pattern from the other side of the wheel) still using the fine jeweler's saw, and finish with file. Smooth each side with fine sandpaper. As all the escapement is metal, those problems are identical with the brass movement clock. Generally you will find the pallets cut and the bearings in the verge saddle worn, and in most cases it pays to make a new verge. Check and make sure that: 1. The brass escape wheel is not loose on its arbor. 2. Check the escape wheel for truth in the round. Frankly, I'd like to hear from some of our readers on overhauling wood movement — maybe someone has better methods.

J. E. C.

Dear Mr. Coleman:

I have received for repair an old Seth Thomas weight-driven strike clock, 8-day,

with lyre-shaped plates, and stamped "Plymouth, Connecticut" on the plate and on the label "Plymouth Hollow, Connecticut." Referring to back issues of A.H.&J., it would indicate the clock was made before 1859. The works are brass, the weights are missing, and my question concerns the weight of the strike and time weight. Any information you could give me would be appreciated.

ROBERT E. RANDALL
Bob's Watch Repair Shop
Box 639
Anthony, New Mexico-Texas

Dear Mr. Randall:

Mr. Raymond S. Behrle, 4142 Deyo Avenue, Congress Park, Illinois, is making a specialty of casting and supplying clock weights. One of his stock items is the identical weights this old, 8-day Seth with lyre-style plates requires. Write him direct for price, postage, etc.

J. E. C.

Dear Mr. Coleman:

I have a customer with an unusual clock who wishes some information as to its age. He was told there are only a few in the U. S. I am sending you some snapshots for reference.

The clock is approximately 15 inches high and 7½ inches in diameter, has marble pillars, top band registers the minutes, and the words "Festeau-A Paris." Bottom band registers the hours. The movement is of brass, and the weight is suspended on a fine wire.

Any information you can give me concerning this clock will be greatly appreciated.

F. H. PRESTON
1050 Main Street
Newington, Connecticut

Dear Mr. Preston:

We've checked through all available listings and do not locate a "Festeau of Paris." The general construction of this piece, the looks of the mainspring barrel in the photo, and the torsion pendulum would indicate it to be a 400-day clock. Is it? Frankly, we've never seen one like it, and there is a possibility that your customer is correct in stating that a very few of them are in the U. S. A.

On the assumption that it is a 400-day clock, I am forwarding your three photos and stamped return together with a copy of your letter to Charles Terwilliger, Box 299A, Bronxville, New York, in the hope that he may be able to tell us both something about this maker. He will return your photos. I shall retain the original letter, and in case he does not have any data, will try some French contact in or near Paris.

J. E. C.

Dear Mr. Coleman:

Some weeks ago I sent you a letter addressed to 10 Arcade Building, Nashville, Tennessee, but did not receive a reply. This time I am sending my letter in care of A.H.&J., in the hope that it will eventually reach you.

I should like to know whether you are still refinishing antique clock dials? If so, I shall appreciate it if you will let me know about what your charges will be for refinishing the dial of an old Clarke and Gilbert clock. This dial is brass and was originally buffed and lacquered. It measures 7¼ inches across the minute circle. Although I have been repairing watches and clocks for a long time, I do not attempt to refinish dials. Incidentally, this clock belongs to me. It was one of the first items of furniture in the home established by my grandfather in Jamestown, New York, after his marriage in 1841. After running continuously for about ninety years, the old movement is still in pretty fair shape. I am putting it in tiptop condition, and will present it to my son, who has set up his own home.

Long live Clockwise and Otherwise! It's mighty interesting.

C. A. VAN BRUNT
3312 One Hundred and Sixty-Fifth Street
Flushing 58, New York

Dear Mr. Van Brunt:

The firm of Clarke, Gilbert & Company was made up of Lucius Clarke and William Lewis Gilbert. They were active from about 1841, when they revived the clock manufacturing business of Riley Whiting which had remained dormant since Whiting's death in 1835, up to about 1848. They made one-day, brass movement, weight-driven shelf clocks generally in old

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It then became the William L. Gilbert Company, and in 1866 this was changed to the Gilbert Manufacturing Company, then in 1871 it was the William L. Gilbert Clock Company which was the same until 1934 when it was again changed to the William L. Gilbert Clock Corporation, which it is today. No doubt you have noted that your movement follows pretty closely the other one-day weight clocks save that the hour count wheel is placed in back of the main strike wheel instead of in front of it. They were excellent runners, and when you get it in order, your son will have a piece to treasure.

J. E. C.

Dear Mr. Coleman:

I am a recent subscriber to the American Horologist and Jeweler, and find it of great value to me in my work. Will you please advise if there is any shop rule-of-thumb to determine the proper width, strength and length, or whether to use single or double suspension springs on seconds pendulum support assemblies?

I have noticed on the older model mantel clocks made about the turn of the century the numbers 4½ up to 6½. What does it mean? In the magazine I have seen references to the use of an oscilloscope and other devices for rapid timing short pendulum clocks. Can you give me any details as to equipment necessary and methods used?

I have in for repair a grandfather clock with "N Adams-Stowmarket" on the dial, and on the thin cast-iron dial support bracket "Walker and Hughes-Birmingham." Can you establish the approximate age for me of this clock? I have had a good many short pendulum clocks with externally mounted verges in for repair. Most of these verges are badly worn both in the pivot mounting holes and very often in the impulse faces. I have tried to buy these verges from practically every source known to me without success. Making a new brass saddle or rebushing is time consuming, and more expensive than installing a new verge. Can you suggest where I might buy them?

Where can I buy dials for drums on

calendar clocks such as the "Fashion" clock made by the Southern Calendar Clock Company of St. Louis?

W. A. BARNES
18 S. W. First Street
Gainesville, Florida

Dear Mr. Barnes:

Quite a number of years ago the celebrated French horologist, J. Lavaire (then director of the Cluses National School of Horology) wrote: "About 1740 Julian Leroy, the French horologist, completed Hooke's invention by constructing, for the purpose of avoiding the undulations of the bob during the excursions of the pendulum, the suspension with two blades (springs) instead of one." This was a rather lengthy paper whose title was "Methods of Suspending the Pendulum" and the above paragraph was lifted out—on the whole he does not specifically answer your question, in fact very little is said about width or thickness of the blades, only that for best results on a seconds penlulum, the blades should not exceed a length of three millimeters.

Ward L. Goodrich in "The Modern Clock" (A.H.&J. Book Department, $4.95 plus 12c postage) gives directions for making a double-suspension for seconds pendulum and says: "The width of this compound spring for a seconds pendulum of average weight may be .60 inch from outside to outside, each spring .15 inch wide. This will separate the springs by .30 inch in the center."

He suggests a spring .007 thick, that the top and bottom clamp be ⅜ of an inch, and the total length (over all) be 1.5 inch. This would leave 6/8 (¾ inch) for the active length of the blades.

We have had very little experience with the oscilloscope on clocks—suggest that you read the articles recently published by Carl H. Anderson in A.H.&J. in his "The Watch Repairman and the Oscilloscope" in order to avoid points recently covered, then write to him—you will note that he invites questions. There are two major drawbacks to the use of any timing device on the general run of short pendulum clocks. 1. It requires an accurate counting of the clock's train in order to first know how many beats it should make per hour. 2. They are not built to, or expected to time down to the degree of accuracy broached by timers.

The "Walker & Hughes, Birmingham" on the iron dial support indicates a firm or ironmongers at Birmingham who supplies this type of casting to the clock trade and are, therefore, not on any of the clockmaker listings. Nathaniel Adams was actively making clocks in Stowmarket, a town about eleven miles northeast of Ipswich, about 1784.

Verges of the type you require are not to be had complete. The Young-Neal Company, Chamber of Commerce Building, Nashville, Tennessee, is marketing materials for you to make them (see answer to W. L. Ledford, this column).

So far as we know, drum strips for the "Fashion" calendar clock have never been available. Being unable to secure them for our own use some time back, we had a supply printed, and I am sending you a pair, compliments of the column.

J. E. C.

Dear Mr. Coleman:

I have a large old-fashioned Symphonian music box which uses metal records, and I understand you might be able to tell me about how old it is.

It was made by the Symphonian Manufacturing Company, New York City, and the number is 14433. Any information you can give me will be greatly appreciated.

W. L. BALDWIN
824 N.E. Nineteenth Street
Portland 14, Oregon

Dear Mr. Baldwin:

Your C.&O. is rather light on music boxes—we do have a couple of volumes, both of them purport to carry a listing, and neither lists Symphonian Manufacturing Company with a date.

If you will direct a letter to Adrian Bornand, 333 Fifth Avenue, Pelham, New York, we believe he can give you something definite on the history of this company—perhaps he may have a listing of their serial numbers. Mr. Bornand is the third generation in the music box business, sales, repairs and records, and is probably the country's foremost authority on music box history.

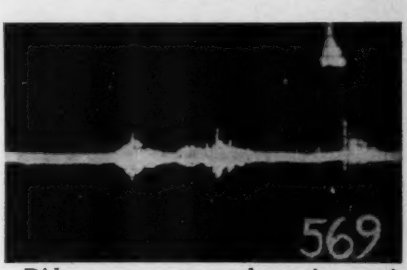
J. E. C.

THE WATCH REPAIRMAN AND THE OSCILLOSCOPE

By Carl H. Anderson

NOW let us look at some oscillograms. With what we have published in the past you should be able to just glance at these oscillograms and tell what is wrong. What about No. 569? Everything is wrong with it. The unlocking, the impulse and the locking are just about as feeble as they could be and the watch still ticks. This was made at a sweep rate of 20 per second, the total time of the escapement action was about 30 milliseconds. The watch would barely tick. The balance arc was about 90°. There is only one thing in the whole escapement action that is half-way good. Know what it is? It is the sound of the lever striking the banking pin after let-off. There was no rebound of the lever either at the entry of the roller jewel or after the let-off after impulse. The marker signal shows the timing machine was printing its chart from the sound of the lever striking the banking pin after let-off. Why was this sound of such amplitude? In fact, why is this particular sound of the greatest amplitude in any running watch?

Let us try to reason it out. The lever is usually made of steel and the banking pin or the fixed banking is also of metal, usually of nickel or brass. When two metals strike each other, don't they usually make a good, loud sound? Of course, depending upon the force with which they strike each other. Would the escape wheel tooth striking the pallet stone at safety lock make a greater sound? *No!* The sound of a small, thin piece of steel (such as an escape wheel tooth) striking any kind of a jewel (ruby, garnet, sapphire, etc.) will not be of as great an amplitude as the sound of two metals striking each other. Remember this from now on as it is a very fundamental thing in escapement diagnosing. Let us repeat it, the sound of the lever striking the banking is of greater amplitude than the sound of the escape wheel tooth striking a pallet jewel.



Did you ever put a good, running watch up to your ear and hear a very clear, bell-like tone in the escapement sound? What do you think that sound was? Do you think it was the hairspring vibrating between the regulator pins? No, it wasn't. Did you think it was the sound of the escape wheel tooth striking the pallet jewel? No, it wasn't. Then, what the heck was it? It was the sound of the lever striking the banking. Want to prove it? Select a watch with banking screws. Remove either of the banking screws (not both) and substitute a piece of sharpened peg wood in the banking screw hole. Turn the peg wood around until you do not have too much slide (about the same as it was when the banking screw was in place) then break off the peg wood, leaving the piece in the banking screw hole.

Now listen to your watch. Every other one of the ticks has the clear bell-like ringing tone, and the alternate ones do not have this sound. Why? On one side the lever strikes the banking screw and on the other side the lever strikes the peg wood. The side which strikes the banking screw still has that bell-like ringing

Mr. Anderson will be glad to answer any question pertaining to the Oscilloscope. Queries should be sent to him in care of the American Horologist & Jeweler, with a stamped return envelope enclosed.

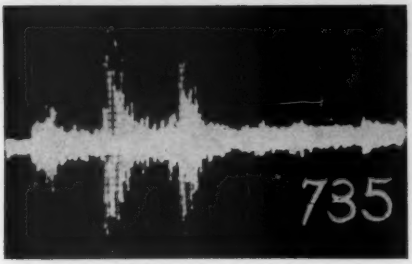
tone, and the side with the peg wood has a "dull thud," if you can hear it at all. A good way to do is to put the watch under the microphone of the timing machine, turn the volume control full on and listen in with the head phone. You will instantly hear the difference. Try it, it is a worthwhile experiment.

From this it is easily proven that the clear, bell-like tone is produced by the lever striking the banking screw. Therefore this will be the loudest single sound of the entire escapement action. In No. 569 this sound is by far the greatest but in this particular watch, this sound is not an indication that the escapement is in good condition. By looking at the other parts of the trace it is clearly seen that every other part of the escapement action is very feeble, therefore very bad. The sound of the roller jewel striking the fork slot at entry is quite feeble, showing the balance doesn't have a good swing. The unlocking action can barely be seen in the oscillogram. The scraping of the escape wheel tooth across the impulse face of the pallet stone to give the impulse is quite feeble. What sound there is was caused by a film of dried up oil on the impulse face of the pallet stone. There was no let-off sound at all. There was no rebound of the lever after impulse, because the lever struck the banking pin and it stayed right there, never moved. The escape wheel was so sluggish in its motion that the escape wheel tooth struck the pallet stone at full lock. There wasn't any draw (or slide) because the lever was already against the banking pin. Look it over for yourself. Do you see it all?

Now what about No. 494? The roller jewel barely struck the fork slot at entry. There was no rebound of the lever. The roller jewel struck the fork slot and remained in contact with it until the roller jewel finally pushed the lever over until the escapement unlocked. When the escapement did finally unlock, the escape wheel tooth did not strike the impulse face of the pallet stone. It very sluggishly moved up and finally came in contact with the pallet stone almost half way down the impulse face. What a time the escape wheel had pushing the lever over. It pushed and pushed, and rubbed and rubbed as is shown by the first group of high pips just to the right of the center of the trace. It took a long time to push the lever a little and it finally moved. The lever sluggishly moved over to hit the banking pin as is shown by the tallest pip. Notice it is just a single pip.

Also notice the pip is quite dense quite a ways up, then it gets very faint ending in a distinct ball. Then the following pips very rapidly decayed or lessened in amplitude. The escapement came to lock and stayed there. Notice there isn't a single pivot slap pip in the entire oscillogram. The sweep rate was 20 per second and the total escapement time was approximately 30 milliseconds. A very bad escapement action caused by dried-up oil and film on all jewel surfaces.

In No. 606 we find an entirely different condition. The roller jewel struck the fork slot at entry with fair force. The lever bounced away from the roller jewel



but did not bounce bank. The balance continuing its rotation caused the roller jewel to catch up with the fork slot. The unlocking action is rather weak and the force of the impulse is quite weak. In fact the movement of the escape wheel was so sluggish (due to very gummy oil) there was just enough impulse to carry the lever over until let-off. The lever being freer than any of the other parts of the escapement did strike the banking with fairly good force. This is seen by the height of the marker signal which shows the timing machine was printing the chart from the lever striking the banking. Escapement action time was very slow. You will notice the trace occupied nearly half the face of the screen of the cathode ray tube. Pivot slap wasn't very great due to the jewel holes being filled up with gummy oil.

In No. 735 we have still another condition. The most important thing in this oscillogram is that the escape wheel pivots had the greatest freedom in their jewels. This is shown by the high vertical pips of the third group. Contrary to what so many watchmakers believe, the escape wheel tooth does not slide down the locking face of the pallet stone and over the corner on to the impulse face of the pallet stone. In unlocking a peculiar action takes place. The locking face of the escape wheel tooth does slide down the locking face of the pallet stone. During this sliding action the escape wheel is turned backward to its usual forward position. If you open the banking screws too wide then you have a very deep lock.

Therefore in unlocking the slide is much greater, which pushes the escape wheel backward a greater distance than where the total lock is of the correct amount. At the time the locking corner of the escape

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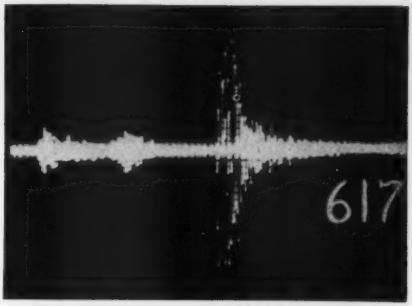
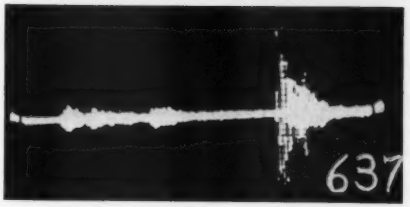
wheel tooth (heel) reaches the locking corner of the pallet stone, the pallet stone is moving upward or away from the center of the escape wheel and the escape wheel is moving backward or away from the pallet arbor. The rate of speed of the angular motion of the lever is much greater than the angular speed of the backward movement of the escape wheel. Therefore the pallet stone moves away from the periphery of the escape wheel while the escape wheel itself is coming to a stop from its backward motion before it can reverse itself and move forward to strike the impulse face of the pallet stone.

If you were to view this action with a stroboscope you would readily see there is quite a noticeable gap between the impulse face of the escape wheel tooth and the impulse face of the pallet stone. Keep in mind that the lever is moving all this time, being moved by the roller jewel being in contact with the entrance side of the fork slot. Then when the escape wheel does reverse itself and move forward, it gains momentum until when it comes into contact with the impulse face of the pallet stone the heel of the escape wheel tooth may land anywhere from one-fourth to one-half down the length of the impulse face of the pallet stone away from the locking corner of the pallet stone. (We are preparing some drawings showing this action which we hope to publish soon. These drawings will clearly show this action.)

When the heel of the escape wheel tooth catches up with the impulse face of the pallet stone it strikes with considerable force, causing quite a jar, therefore the pips showing this sound will be of great amplitude. When this strike does occur it immediately knocks the lever over and the impulse side of the fork slot jumps over and strikes the impulse side of the roller jewel. From this action do you see why it is necessary to have a very neat fit of the roller jewel to the fork slot? If the roller jewel is too small there will be a considerable loss of impulse to the balance, resulting in a losing rate for the watch.

In No. 735 this action is very clearly shown. You can see the impact of the





escape wheel tooth (heel) with the impulse face of the pallet stone, the impact of the fork slot with the roller jewel and the pivot slap. Then when the lever strikes the banking it does so rather sluggishly. In this oscillogram it is clearly seen the balance is rather sluggish due to the congealed oil and the same is true of the pallet arbor. Of the three parts of the escapement, the escape wheel is the freest. You will notice this watch also has some rough jewel holes.

In No. 617 and No. 637 we have very feeble balance motion and impact between the escape wheel teeth and the pallet stones, but the lever does make a fairly good sound when it strikes the banking.

• • •

We exceedingly regret that space does not permit us to make a more detailed diagnosis of these oscillograms. What we have been endeavoring to do is to cover as many of the basic fundamentals of the escapement action as briefly and as rapidly as possible so that later on we can go back and take each one of these oscillograms apart and minutely diagnose them. We feel this is the better course to pursue because when we get around to diagnosing each single pip you will better understand it.

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IN THE IMMEDIATELY preceding issues, you have been introduced to quite a formidable list of chemicals, positively none of which does your author recommend. It is strictly up to you as to what you use. It is also recommended that you do not promiscuously mix any of these chemicals together unless you know what you are doing. If you do not know your chemistry, better talk it over with someone who does understand chemistry, then follow their suggestions. We do know, however, that some of these chemicals are used individually by themselves and others are mixed in certain proportions with other chemicals to make cleaning or rinse solutions. (How do you feel now that you have had a short course in advanced higher chemistry?)

To our way of thinking the ideal cleaning and rinse solution would be as odorless as possible, one that gives off no noxious or toxic fumes or gases, is absolutely non-flammable, is a good solvent for oils, greases and waxes, and leaves a bright, clean sheen on metal surfaces. Perhaps some of these days someone will come up with such a solution. It is truly worth experimenting with.

If you decide to experiment with any of these chemicals, be sure you select some of your old "klunkers" for the test, don't start out with a fine watch. We also know that two workmen do not always come up with the same "end result." A solution which may be excellent when used by one man may be worse than worthless when used by another. An excellent example is carbon tetrachloride. In more than ten years' experience with its use, we have had only two watches which showed any traces whatsoever of rust. We know others who simply can not use it, at all. Why? They are working in rooms where the relative humidity is high, while the room in which we work has a very low relative humidity, usually around 20% and even on a very rainy day, it only goes up to around 35% to 40%. How do we know this? We sell Humiguides (Hygrometers, not hydrometers) in the store where we are employed and we take a look at them almost every day. You simply can not use carbon tetrachloride in a room where the humidity ranges around 65% or more, you are sure to have rust on your highly polished

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steel parts. The carbon tetrachloride we use does not contain an inhibitor of any kind, so we must work in a room with a low humidity.

* * *

Here is one which you may not be acquainted with, although we personally know many watch repairmen who use it on every watch they repair:

Stannic Oxide. (Also known as white tin oxide; tin dioxide; stannic anhydride, flowers of tin. The commercial grade is also known as polishing powder, putty powder and tin ash.)

It it a white or slightly gray powder. Insoluble in water, alcohol or cold acids; slowly soluble in hot concentrated potassium or sodium hydroxide solution (caustic potash or caustic soda).

It is used in polishing glass and metals; manufacture of milk-colored, ruby and alabaster glass, enamels, pottery, putty; mordant in printing and dyeing fabrics; in fingernail polishes. It is available in reagent and technical grades.

Many watchmakers know this chemical as Tin Oxide or Oxide of Tin. Did you ever use it? It will give a pivot the highest possible polish, much higher than diamantine. The best way to use it is to polish your pivot first with a soft iron lap and oilstone powder mixed with oil; next a bell metal lap with crocus mixed with oil, then a boxwood lap and diamantine mixed with oil and finish with the stannic oxide.

For this purpose you can mix the stannic oxide with a small amount of oil on one of the plates of your three-story polishing block. Mix it until it is slightly thinner than putty. Secure some good corks with smooth, polished ends. Rub the end of the cork into the stannic oxide and oil mixture on your polishing block until the mixture thoroughly penetrates the end of the cork. Then run your lathe at the highest possible speed.

While running at this speed, jab the end of the cork which has been impregnated with the mixture, down over the end of the staff or pinion until the cork completely covers the pivot. Jab the cork down over the end of the staff three or four

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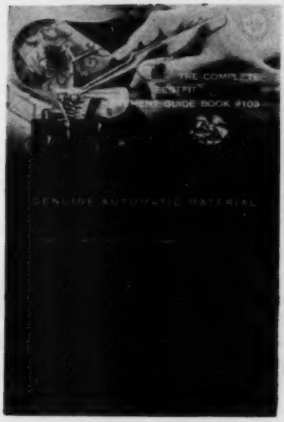

AMERICAN HOROLOGIST & JEWELER BOOK DEPT.
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times while the lathe is revolving at its highest speed. Remove the staff from the chuck and dip it in benzene, or whatever else you use for removing oil, then jab the staff into your pith wood. When you remove the staff you will notice it has a much higher polish than it had before. Of course the stannic oxide does not cut and it will not remove fine scratches or lines from a pivot such as are left by a Jasper Stone lap. You must remove the scratches or lines from a pivot by using the soft iron lap and oilstone powder, then bell metal lap and crocus, which will leave the pivot with a semi-grey finish.

If you wish to put a really high polish on the hub of a staff, the cork impregnated with the stannic oxide mixture will do the job better than anything else. We do not own a Jasper Stone Slip, therefore have never used one. In polishing the pivots of pinions, you use the same procedure, only you do not jab the end of the cork down until it covers the leaves of the pinion. Push the cork on until the end just barely touches the top of the pinion leaves. This will not only polish the pivot of the pinion, but will likewise put a high polish on the end of the pinion leaves. If you have never used stannic oxide, the first time you use it you will be surprised at the "high black" luster your polished surface will have. It will produce a real "mirror" finish on hardened steel if the surface has been properly prepared beforehand.

* * *

By the time you are reading this we will have cleaned some of our experimental watches and will report on them. We will make oscillograms of these watches as they are worked on, both before and after cleaning, as well as before and after being oiled. We promised we would publish oscillograms showing the effect of oiling and not oiling various parts of a watch, the use of different oils on the same watch, and several other things.
We also expect to be able to bring to you many new and highly important points and developments which may be of inestimable value to you.

* * *

Beginning next month we will include in each article a few "how to do it" hints which we hope you will find valuable. We do not say our methods are always the best, because no man who retains his

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normal faculties ever ceases to be a student. We know the trials and errors we have made until we found a method that proved satisfactory to us. Perhaps the same method will be satisfactory for you, or you may have a very much better method. If you do, please tell us about it so it can be published and thereby passed on to the others who might be interested.

* * *

There is one thing we do sincerely appreciate. We really do like it when someone does not like our method of doing something. Take for example our method of sharpening pegwood. So far we have received four letters disagreeing with us. Mr. A. J. Strobel, Chief Watch Inspector of the Atchison, Topeka and Santa Fe Railroad, does not like our method. We really appreciate letters like this. It gives us something to think about.

We can readily see Mr. Strobel's point of view because there are many men at the bench who are troubled with perspiration. Everyone knows perspiration contains salt and likewise what moisture-containing salt does to highly polished steel parts. Fortunately we have "dry" hands and can handle the plates of a watch without leaving finger prints, which not every repairman can do. Then there are those who have had disastrous results with carbon terachloride. We firmly believe every one of these cases can be traced to either high humidity of the work room or a low grade of carbon tetrachloride.

We do know either of these things will cause rust and where the humidity of a work room is high, when carbon tetrachloride is used the moisture in the air combines with the evaporation gas of the carbon tetrachloride to form hydrochloric (HCL) acid. (You may call it muriatic acid.)

We have seen a few cases of this rust and it looked like a very fine spider web. We have never seen a case of solid rust like that caused by water and do not know whether or not such a rust condition could obtain in such an instance. We do know however, one chemical will prove entirely satisfactory in one locality or in the hands of one workman, while in another locality or a different workman it may be "poison."

The response to our February article has broken all records for an article published in any horological or jewelry magazine. We sure hit the "bulls-eye" with oil failure. Then there were hundreds who asked for the charts mentioned. While the number of replies was not what we would have liked it to be, yet there were enough to convince us the charts should be published. In the June issue we will publish the first of these charts and will continue them thereafter until they are all published.

Before publishing the charts, however,

we can not too highly recommend to you the purchase of James Hamilton's book, "Timing Manipulations." It is a masterpiece. This is the clearest, most concise work ever published on adjusting. It is so simple a child can understand it. It is not ambiguous, it does not ramble, it is not "rattle brained," it is straightforward and to the point. It was written by a clear thinking, level-headed young man who knows his business. He is National Secretary of the National Association of Timing Instructors. It tells you all you need know about position, temperature and isochronous adjusting.

If you will read this book before trying to use our charts, you will understand the charts much better. It would be an excellent idea for you to sit down right now, before you forget it and order a copy from the Book Department of A. H. & J. The price is $3.00 plus 8c postage. In all the articles we have ever written, we have never given you a better tip than this one. "A word to the wise is sufficient."

* * *

We very much regret to report one of our readers had a disastrous result while trying to mix one of the cleaning solutions. We quote his letter:

In the February issue there is on Page 70 a formula for making a watch cleaning solution. I have used this kind of solution for many years except I never used the hydrogen peroxide. Today I made up this formula following directions very closely. After adding the hydrogen peroxide I gave it a good shaking and went a few feet away to do some work and in a few minutes there was a terrific explosion and the bottle was in a hundred pieces.

I think you should inform the readers in the next issue that this is an extremely dangerous solution for the watchmaker to make up. There was no mention of letting off the gas after adding the peroxide. Very truly,

H. W. PETTENGILL.

We were not present when Mr. Pettingill made up the solution so can only surmise what took place. Either the bottle was weak, may have been full of minute cracks or crazed, or the gas was not completely let off. We cannot possibly see how the addition of the hydrogen peroxide could cause an explosion. It is added only as a preservative to keep the solution from discoloring so rapidly. If you ordinarily use a gallon of cleaning solution within two or three weeks, it is not necessary to add the hydrogen peroxide. On the other

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hand there are some that will not use a gallon of cleaning solution in two or three months or longer. In both cases, you can leave out the hydrogen peroxide, but if you do, after a couple of months or so, the solution will begin to change color. First it will be a very faint canary color, then gradually darkening to a light brown, then a dark brown and finally a deep cherry brown. At this latter stage the solution has absorbed considerable oxygen from the air in the bottle and we do not think it advisable to use such a solution.

If you use the hydrogen peroxide be sure you use only the 3% solution, and half-a-pint is enough, although you can use a full pint if you so desire. We believe Mr. Pettingill thought he had released all the gas, but undoubtedly gas continued to form from the vigorous shaking after the hydrogen peroxide had been added. You could shake the solution thoroughly then leave the cap off for a couple of hours when all possible gas should have dispersed itself. If you aren't sure the gas has been completely dispersed, you can release the cap every hour until there is no further leakage of gas.

As far as being dangerous is concerned, practically every watch repairman anywhere in the world who has used a foaming cleaning solution or any other which contains ammonia is subjected to the same danger, although we know it to be very slight. This solution, when properly prepared and the gas allowed to completely leak off, is no more dangerous than the foaming cleaning solution you may have been using. We sincerely regret, Mr. Pettengill, that you had this experience. It only goes to further prove our statement made elsewhere, "No two workmen will come up with the same end result." We have made hundreds of gallons of this solution for ourself and friends and have never once had the slightest difficulty with it.

* * *

Keep your letters and cards coming in telling us what you wish written about and we will do it just as quickly as humanly possible. Many thanks to those of you who have written in; and to those who have not written, why not do it now?

"I sunk every cent I had into getting the first wristwatch concession on the moon."

Your Scratch Mark Is Your Trade Mark

By NORMAN D. LUTH, President,
United Horological Association of America

ALTHOUGH the history of the trade mark is comparatively recent, the impact the use of the trade mark has had on the business world is truly phenomenal. Since every person has pride in his creation and wishes to identify his product as something individual, the use of a registered trade mark elevates a product above the general run-of-the-mill merchandise.

Norman Luth

The same is true of the watchmaker who will work carefully to repair a watch to its original condition. When he has completed his task, he will place his scratch mark inside the watch. This should identify the watch with good workmanship, provided the watchmaker has done an honest and sincere job. Evidence of the scratch mark indicates the watchmaker is proud of his work, and the mark is usually a combination of his initials, his store, or something equally important to him. A famous psychologist in Los Angeles told me this is the expression of the craftsman's pride in his work. I am certainly inclined to agree with him.

Some watchmakers guard their scratch marks as jealously as they would an ancient pirate treasure map. Are they afraid another watchmaker will recognize the mark and criticize the work? This is nonsense. In my travels about the country, I have learned that the average watchmaker is a pretty good guy, and not eager to tear down the reputation of his neighbor craftsman. He knows that a knock for the other fellow is usually a boost instead. For instance, if you looked inside a watch and saw that John Doe down the street repaired it and all that was wrong was regulating, or the hairspring over the stud or something equally simple, you would realize that it would be better to either do the job without charge and make a few kind remarks about the fine work the watchmaker had done before, or to tell the customer to take the watch back to John Doe and he will do the necessary work without charge under the guarantee.

This makes the customer feel good, not only with the original repairman, but also with you because you had been honest with him. The confidence of the customer is the element which must be cultivated at all times.

Did you ever hear a doctor actually come right out and say the other doctor down the street was a crook, a skinflint or a charlatan? Did you ever hear a dentist tell you you were crazy to have Dr. So-and-So fill your teeth? Of course you haven't! Then why should one watchmaker try to tell the public that the watchmaker down the street is a butcher? I am positively convinced if the watchmakers would get acquainted with each other, the mythical barriers between them would disappear like snow in summer.

It is not always possible for watchmakers to fraternize, so the next best thing to do is to exchange scratch marks and discuss problems of mutual interest—better watchmaking, better organization, better technical information, and perhaps better public relations between stores and the public. Don't be afraid to swap material between yourselves. Don't be afraid to discuss a problem with your neighbor watchmaker—he may have some things he wants to discuss, also, but is afraid you are mad at him. You will soon learn the same as I have, that he is a pretty good Joe. The next time you find his scratch mark in the back of a watch, you will give him a friendly boost and thereby benefit both of you. "Knocking" is a form of petty larceny no professional man would stoop to perpetrate on the general public.

At the present time, about the only purpose the scratch mark serves is information for the one watchmaker who placed it there. It is his check to determine when the watch was repaired, what was done to

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4¼"x	7½"	(with 1" hole at top)	3.50
4½"x	8	"	2.38

O.D	HT.		Price
*4⅝"x	8"		$2.00
*5½"x	11	"	2.50
7	"x11	"	4.25
7¾"x	15	"	6.25

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YOUR SCRATCH MARK—Continued

it and how much was charged. This has only touched the surface of the value this little scratch mark could have provided if the mark was registered with the United Horological Association of America.

Here is an actual case: The Los Angeles Police Department is trying to identify the remains of a body found in Griffith Park on December 27, 1953. Among the personal effects of "John Doe No. 94" was a Gruen wrist watch, 17-jewel, white metal case with white metal expansion band, movement No. 657200, case No. 1111038, case stamped inside Gruen 14K Cincinnati 117/64, scratch marks inside case MH 3153, C 2166, G 4387MP, 6953.

Ed. Note: The West Virginia state police are seeking assistance in identifying a skeleton found recently on the banks of the Kanawha River near Charleston, W. Va. At the time of discovery, the skeleton bore a wrist watch described as a Lonville in a stainless steel case, carrying repairer's scratch mark L-174-W.

If the scratch marks of the watchmakers who repaired this watch were registered, the crime would have been nearer solution long ago. If one of these scratch marks are yours, please communicate with the American Horologist & Jeweler, giving complete details of the owner. *This is the last hope of discovering the dead man's identity.*

Every month there is an auction sale at the police department where they sell unidentified watches, rings and jewelry that have been confiscated during arrests of criminals. Much of this material could be restored to the rightful owners if scratch marks were available to the law enforcement agencies. Scratch marks should be registered with the United Horological Association of America, which will make every effort to cooperate with the law.

Think of the customer relations you can build by advertising a Registered Scratch Mark System. When watches have been repaired and returned to the owners, you can give them a printed form stating that your scratch mark in the back of the watch is (NL 5490, etc.) and should they lose their watches or have them stolen, they can return the form to you and you will have a complete record of the watch for them to give to the police for positive identification. The customers will thank you profusely and they will leave your repair department with a very friendly feeling.

At the recent atomic tests held in Nevada, a wrist watch placed on the arm of a mannequin was melted to a metallic blob, but the scratch marks inside were still legible. This should be positive proof that the wrist watch can be used for personal identification under the most extreme circumstances.

The only problem in this whole matter is to get the repairmen to register their scratch marks. With the information given here, any right-thinking watchmaker can immediately realize the importance of this simple matter of registering his trade mark.

Send yours in today on the following form:

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Jewelry Repairing

By R. ALLEN HARDY

MAKING A RING LARGER

MAKING a ring larger requires quite a different technique from making a ring smaller. This involves handling a separate piece of metal and securing it at two separate soldered joints.

Assuming that we are given a size 6 ring that must be expanded to a 7½, it appears that we must insert a piece of gold measuring 1½ sizes to come out exactly right. In reality, this is only a vague explanation of what really occurs.

The experienced ring sizer does not cut out a piece of gold measuring exactly 1½ sizes but slightly less than 1½ sizes because, during the process of working with the ring, the filing, buffing and pounding operations remove a certain amount of gold that will affect the final size.

It is difficult to say exactly how much metal should be inserted because this will depend on the thickness of the sizing stock and it is up to the jeweler to estimate as accurately as possible. If the sizing stock is only slightly thicker than the ring shank, it is safe to estimate 1⅜ sizes as the correct length of metal to be inserted. The slight pounding and slight filing operations should expand the ring (after soldering) to the correct size of 7½.

And now to explode some of the common misconceptions about making a ring larger. It is not necessary to shape the piece of metal (to be inserted) in the general shape of the ring before soldering. It is quite simple to be concerned only with one joint at a time. After one joint is soldered, the other joint may be shaped for soldering. Then the ring may be rounded on the mandrel.

Of course the shaping of the inserted piece of gold requires slightly different treatment depending on the length of the piece to be inserted.

If a small piece from ½ size to about 2 sizes is to be inserted then the piece to be inserted may be shaped in a manner similar to that shown in *Fig.* 7. After rounding on the mandrel and pounding to expand to the correct size, the ring may be

Fig. 7

refinished as explained under "Making a Ring Smaller" (April, 1954, A.H.&J.).

If a large piece (as much as 3 sizes) is to be inserted then the piece may be soldered as shown in *Fig.* 8. After the one side is anchored the remaining joint is easily shaped as shown in *Fig.* 9.

To avoid confusion, let us follow the expansion of a ring from size 6 to 7½ step by step.

(1) The first step, of course, is to determine the exact size of the ring to be expanded. If it really does measure size 6 then consider the ring stock nearest to its thickness and width.

(2) Depending on the actual thickness

Fig. 8

Fig. 9

Mr. Hardy invites your questions pertaining to jewelry repairing. Questions should be directed to Mr. Hardy, c/o The American Horologist & Jeweler, Box 7127, Capitol Hill Station, Denver 6, Colorado. Please enclose a self-addressed, stamped envelope.

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Fig. 10

Fig. 11

of the ring sizing stock available, saw a length measuring approximately 1⅜ sizes.

(3) Saw the ring in the exact center (unless it has been sized before). In this case, it is necessary to heat the ring shank with a flame. If it has been sized before, a thin line will show where the previous joint or joints were made. Saw through where the original joint was made. If two lines show, it will be necessary to measure the amount between the two lines and add this length to the amount to be expanded. The metal between the two lines showing should be removed. The larger piece with the added length will result in a properly sized ring with only two joints. It is generally conceded to be a bad policy to try and cope with more than two joints in any ring shank.

(4) With ring-bending pliers, open the ring to approximately the length of the piece to be inserted. Square the two ends of the shank to match the angles of the squared ends of the length of gold to be inserted, see *Fig. 10.*

(5) Place the gold stock insert in position, *Fig. 11.* Little or no tension should be used to hold the piece, for when heat is applied metal expands and this would cause the piece to ride up or change position slightly due to heat pressures.

(6) Holding the ring with soldering tweezers, apply flux and solder to each joint. With a broad blue flame apply heat and solder. Since the joints are very close, they may be soldered almost simultaneously using the flame. Using the machine, one may be soldered, then the other.

(7) If great care has been taken, and no shift in position is evident, the ring should measure slightly under 7½ after rounding on the ring mandrel. The inside filing operation and the gradual pounding and rounding up should bring the ring up to an exact 7½.

(8) The refinishing is done in the same manner as explained under "Making a Ring Smaller." Always remember that careful sawing, filing, and buffing will eliminate the necessity for doing a job a second time, which is the real secret to speed.

Shanking a Ring

Putting in a new shank is just as easy an operation as expanding a ring a size or two. The major difficulty appears to be arriving at the correct original size.

The first thing to do is to cut away the thin or worn section of the ring to be shanked. Straighten out the worn piece and measure off (on gold stock) slightly less than the actual length. Saw out the new shank from the gold stock and prepare to solder. Some jewelers shape the shank before soldering, some solder one side and then shape the shank to solder the

other side. It is suggested that the beginner try both methods.

After anchoring one side the heated length of metal is annealed and quite easy to shape and anchor to the other side.

It is well to remember, when putting in new shank, expansion will be proportionately greater than when putting in one or two sizes. Carefully estimate how much shorter (than actual size) the new piece should be.

* * *

Dear Mr. Hardy:

I have read with interest the first two articles on jewelry repairing in the A.H.&J. I'm very glad to see A.H.&J. come through with this column, as I'm positive there are lots of other fellows in the same class.

I'm a watchmaker in a small shop, therefore I am called on to do jewelry repairing. I really enjoy doing it, but there are so many jobs that I know are simple, but due to my lack of experience, they are sometimes complicated. Especially so in the tightening of stones.

I would like to know if you know of a jewelry repairing book on the market which would be especially suited for me as a student. Something which contains many illustrations, covers all phases of jewelry repairing, stone tightening in rings, as I believe this type of book to be the most helpful.

Every once in a while, while ring sizing, the shank heats up, but the solder doesn't flow properly. What could be the trouble? I own a Good-All soldering machine.

ROBERT WOLFINGER

Wolfinger's
334 West Broad Street
Quakertown, Pennsylvania

Dear Mr. Wolfinger:

I can appreciate your situation and I know precisely what you are looking for in a jewelry book with illustrations—one that is directed solely at the beginner.

I can suggest "The Jewelry Repairer's Handbook" by Replinger, and "Metalcraft and Jewelry" by Kronquist. These books are full of good information for the beginner, but they do not have illustrations in the abundance that you request.

As you probably know, I once taught jewelry work and engraving at Bowman

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Technical School in Lancaster, Pennsylvania. While I was there I scanned the market for just such a book with illustrations, directed at the beginner only. Finding none, I proceeded to compile just such a book—mainly illustrations, very little copy. It has been completed, but is not yet in print. I am sure it will answer your demands, so watch for its publication.

Your problem about the solder not flowing after you have heated the shank suggests that the joint is not as clean as it should be. Remember that the most important thing in soldering is cleanliness. Solder will not flow through a joint that isn't thoroughly clean. Remember, too, that when an area is subjected to great heat, a scale of oxidization may form that will hinder the flow of the solder. Of course this is the primary purpose of the flux, but it is possible to burn out the flux (or render useless) by improper fluxing and heating, before the solder flows. There is nothing to do to remedy the situation but to clean everything and start afresh.

Since you own a Good-All soldering machine, it seems apparent that you are not gauging the required heat accurately. If you are proficient in estimating the approximate heat required for each job, then your trouble could be in your flux. If you are estimating your heat accurately and you have an adequate flux, there should be no trouble in securing a good joint instantly with your machine.

R. A. H.

Dear Mr. Hardy:

I have been reading your articles, "Jewelry Repairing," and enjoy them very much. At the present time I am doing jewelry repairing, and am using a natural gas torch and air for soldering. After reading your article referring to an oxygen and natural gas type, I wondered if this would work better than my present type. Also, if you have to use compressed air with the type you mention.

I would like a torch that I can handle anything with—gold soldering up to platinum. Please explain more fully regarding your oxygen-natural gas type, and give any suggestions you might have as I'm planning to change to a different type.

T. B. CLARY

3933 Herrick Street
Flint 4, Michigan

Dear Mr. Clary:

I am glad to hear that you are interested in my articles and I will certainly do my best to explain more fully the oxygen-natural gas technique of soldering.

As you know, there are many ways to obtain a soldered joint, but to my knowledge there is none better nor more diversified than the oxygen-natural gas method. The reason is quite simple. By using an oxygen tank with pressure gauge, the maximum or minimum amount of heat can be regulated by a touch of the finger to the oxygen and gas regulators. With such a wide range of heats possible, I would say this method is the most nearly perfect medium for all soldering.

You mentioned that you would like a torch that you can handle anything with. If you have never used this type of torch then you do have a treat coming because it leaves nothing to be desired. This does not mean to say that your troubles are over because just as in any other new venture, new techniques must be learned and developed until skill and adeptness are acquired.

The usual oxygen-natural gas torch has about five different nozzles to attach for the varied jobs. Selection of just the right nozzle to meet the particular job must be acquired. The technique of adding just the right amount of oxygen to the natural gas

must be developed. In other words, a "knack" for knowing what is the correct heat is arrived at through constant familiarity and practice.

A few hints well worth observing are these: Avoid pin-point flames; heat articles slowly using the maximum broadness of flame (there is always a maximum and minimum flame for each soldering job). Add oxygen slowly until desired heat is reached. Remember that a slowly soldered joint is a strong sure joint. A quickly soldered joint is doubtful.

You mentioned that you would like a torch that can handle anything from gold soldering to platinum soldering. The oxygen-natural gas torch will actually do better than that. It will handle soft soldering as well, although an alcohol flame is recommended for this type of work. Soldering platinum is no problem, especially since a more concentrated flame is needed. With a full tank of oxygen to draw from, and a pressure gauge to work with, the flame adjustment is easily made.

Any oxygen-natural gas outfit will include instructions for setting up and for correct gauge pressures. Once assembled, it requires little attention except to change tanks when empty.

R. A. H.

Dear Mr. Hardy:

I have read with interest your articles in recent issues of the A.H.&J. I know these articles are going to help me, and I expect the experienced repairman will pick up a few good pointers also, as there is such a thing as "bad experience."

I am a graduate of a watch repair school not working at the trade at present. Since many jewelers are justly cool toward the inexperienced, I plan to start for myself within two years if I possibly can. The time is near when I'll have to decide on this or continue in my present work.

Jewelry repair was passed over very lightly in school. We made rings from brass and did silver soldering, and that was about it. No fine chain repair or non-precious stone setting or even expansion band repair.

As you can see from the above, I can use a series of articles such as you are writing and also if you have any good books to recommend on this subject I would

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appreciate hearing from you on this along with any other advice you have to offer.

HARRY L. OATES
511 Lawnview Avenue
Springfield, Ohio

Dear Mr. Oates:

Your letter is very encouraging and it is always heartening to hear from someone who is genuinely interested, as you appear to be.

I can agree with you that it is a shame that jewelry repair is passed over so lightly in many instances. I can think of no other branch of the repair end of the jewelry business that is more important to sales. I remember many instances where a diamond sale depended solely on my ability to set the stone in a selected mounting in a given time.

I will say this—if you plan to go into business for yourself, you will have a better than average chance of succeeding if you will acquaint yourself with all phases of jewelry repair in addition to your watchmaking experience.

Books that I would suggest for the beginner are: "The Jewelry Repairer's Handbook" by Replinger, and "Metalcraft and Jewelry" by Kronquist.

Best of luck to you.

R. A. H.

"I'll be glad when alarm clocks are invented!"

Guild & Association News

LOUISIANA ASSOCIATION HOLDS 9TH ANNUAL CONVENTION

The ninth annual convention of the Louisiana Horological Association was held May 1-3 at the Jung Hotel, New Orleans, Louisiana. Guest speakers included Norwood Jatho, Jr., Field Representative, Apprentice Training, of the U. S. Department of Labor; Dr. T. E. Hampton, Supervisor, Trade and Industrial Education, Louisiana Department of Education; E. Theiler, Swiss Consul of New Orleans; Paul A. Tschudin, of The Watchmakers of Switzerland Information Center, Inc.; Fred C. Kline, vice-president of the United Horological Association of America; Arnold A. Schiffman, president of the American National Retail Jewelers Association, Inc.; Jack S. Ivers of American Time Products, Inc., and R. W. Slaugh, head watchmaker of the Hamilton Watch Company. Films shown were from the Hamilton Watch Company, Gruen Watch Company, Elgin National Watch Company, Eterna Watch Company, and American Rolex Watch Company.

Business and legal subects were discussed by F. A. Givens, Jr., secretary of the Louisiana Board of Examiners in Watchmaking, and R. J. Slagle, membership secretary of the Texas Retail Jewelers Association.

These highlights plus many others including a ladies' tour of the city of New Orleans, and the annual banquet, made the convention a most interesting event.

NAWCC CONVENTION SCHEDULED FOR MAY

The tenth annual convention of the National Association of Watch and Clock Collectors is being held in the St. Francis Hotel at Canton, Ohio, May 14, 15 and 16. All the activities of the convention will take place within the hotel, except the visiting of collectors' homes in and around Canton. Ten speakers came from all parts of the country, and there are over 20 motion picture films being shown during the three days of the convention, many of

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which are foreign films—most of them in color, and all in sound. There is a large collection of clocks, watches and other horological material on display, which was brought in by the membership.

The meeing also aroused a good deal of public interest.

AUTOMATONS, WATCHES FILM FEATURE AT N. Y. MEETING

About 150 watchmakers and their guests attended the April meeting of the Horological Society of New York, Inc., which was held at the Capitol Hotel. The meeting was presided over by Henry Fried, president.

The meeting was opened by the presentation of a colored sound film on unusual watches and automatons. The film was made by C. Kalich and S. Greenglass. The film narrator was H. Fried. This production is a work of art because of the exceptional color and the clearness of the watches shown as well as for the motion and sound of the automatons. These unusual timepieces covered the period of the 16th to the 19th centuries.

The principal speaker of the evening was C. J. Corliss, Public Relations Director of the Association of American Railroads, who spoke about the introduction of Standard Time in the United States. In his speech about the "Day of Two Noons," Mr. Corliss spoke with humor and clarity concerning this important event in the history of time and the railroads.

As usual, the meeting was followed by horological exhibits and the serving of refreshments.

EUGENE P. WETZEL HEADS KANSAS STATE ASSOCIATION

Eugene P. Wetzel of Wichita, Kansas, was re-elected president of the Kansas State Watchmakers Association. Other officers are: E. G. Beckman, vice-president, of Kensington, and Robert Fisher of Topeka, secretary-treasurer. The jewelers and watchmakers convention was held at the Hotel Lassen in Wichita the early part of April. Featured speakers were Richard Slaugh of the Hamilton Watch Company, and Forrest E. Peters of Washington, D. C.

GUILD MEETING DATES

IOWA

Des Moines Capitol City Guild Auxiliary: First Wednesday of each month.

Cedar Rapids Watchmakers Guild: Third Thursday of each month. No meetings July, August and December.

Fort Dodge District Watchmakers Guild: Second Tuesday of each month. No meetings June, July, August or December.

Northwest Iowa Watchmaker's Guild: Second Tuesday of each month. Meeting place rotates Storm Lake to Cherokee to Spencer.

Waterloo Watchmakers Guild: Second Thursday of each month. No meetings July, August or December.

LOUISIANA

Alexandria Watchmakers Guild: First Wednesday of each month.

Baton Rouge Watchmakers Guild: Second Tuesday of each month.

Metairie Watchmakers Guild: Second Monday of each month.

New Orleans Watchmakers Guild: First Monday of each month.

Shreveport-Bossier Watchmakers Association: First Thursday of each month.

Southwest Watchmakers Guild, St. Charles: First Wednesday of each month.

MARYLAND

Horological Guild of Baltimore: Last Wednesday of each month.

MICHIGAN

Greater Detroit Horological Society: Second Monday of each month, 8 p.m.

MINNESOTA

Minneapolis Watchmakers Guild: Second Wednesday of each month. No meetings July, August and December.

NEW HAMPSHIRE-VERMONT

Twin States Watchmaker's Guild: Lebanon, N. H., second Monday of the months of April, June, September, November, 8 p.m.

NEW YORK

Hudson Valley Watchmakers Guild: Next meeting, third Monday of January.

NORTH CAROLINA

Winston-Salem Watchmakers Guild: Second Thursday of each month, 7:30 p.m.

OKLAHOMA

Oklahoma City Watchmakers Guild: Third Friday each month, 6:30 p.m.

Ponca City Watchmakers Guild: First Thursday of each month.

SOUTH CAROLINA

Columbia Watchmakers Guild: Second Tuesday of each month.

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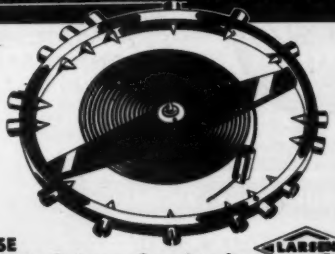

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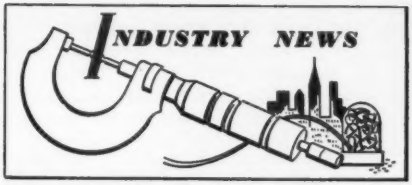

SINKLER SUCCEEDS LUCKEY AS HAMILTON'S PRESIDENT

Back row (left to right): Arthur B. Sinkler, president and chairman of the board; Harry G. Thomas, vice president (finance), and comptroller; Robert B. Thompson, executive vice president; Lowell F. Halligan, vice president (sales), and Henry S. Tholen, assistant secretary and assistant treasurer.
Front row (left to right): Roland Raver, vice president (manufacturing); Richard J. Blakinger, secretary; Harry R. Lawrence, treasurer.

Arthur B. Sinkler was elected president and board chairman of the Hamilton Watch Company last month to succeed George P. Luckey. At its annual reorganization following the shareholders' meeting, the Hamilton board also elected the following officers:

Robert B. Thompson, executive vice president; Lowell F. Halligan, vice president (sales); Roland Raver, vice president (manufacturing); Harry G. Thomas, vice president (finance) and comptroller; Harry R. Lawrence, treasurer; Richard J. Blakinger, secretary, and Henry S. Tholen, assistant secretary and assistant treasurer.

To fill the board vacancy caused by the retirement of Luckey, Hamilton shareholders elected as a new Hamilton director for a three year term George C. Delp, president and general manager of the New Holland Division of the Sperry Corp. Hamilton directors Halligan, Sinkler and Thompson were re-elected for three-year terms at the annual meeting, and Lybrand, Ross Brothers and Montgomery were elected Hamilton's certified public accountants for 1954.

Sinkler, Hamilton's new president, is 43 years of age, a native of Villanova, Pa., and a graduate of the University of Pennsylvania. He started at Hamilton in 1936 as a position adjuster. He helped develop the company's present modern line assembly of watches and in 1940 was made supervisor of research engineering. Then he was successively foreman of specialties assembly, assembly research and in 1946 became director of quality. He was appointed general manager of the company's defense order division in 1950 and one year later was named director of research.

In 1952 he was elected vice president (manufacturing) and a member of the board. After Luckey made known to the board last year his decision to retire, the board appointed Sinkler executive vice president at its December 1953 meeting, anticipating his succession to the company presidency.

REPAIR ROUND-TABLES DRAW HEAVY ATTENDANCE

The extensive interest of jewelers and watchmakers in the profit possibilities of their watch service department was strongly evidenced by heavy attendance at six Repair For Profit Round-Tables recently held in Ohio, Texas, and California.

Held under the sponsorship of the local watch material distributors in cooperation with The Watchmakers of Switzerland, the forum-type meetings had as their theme, "The Business Side of Watch Service." Practically all cities reported record attendance for meetings of this type.

Material houses that sponsored the meetings were: Cincinnati: E. & J. Swigart Co., Cas-Ker Co.; Columbus: Columbus Jewelry Co., Sten, Inc., William Workhaven & Son; Houston: Prague-Kortz Co.; Dallas: Gould Co., William R. Katz Co., Swartchild & Co.; San Antonio: B. M. Hammond Co.; Los Angeles: E. W. Reynolds Co., Pacific Jewelers Supply Co., Friedman-Gessler Co., Stanley O. Jacobs Co., Swarchild & Co., R. P. Gallien; San Francisco: E. W. Reynolds Co., Nordman & Aurich, Fried and Field Co., Williams & Petersen.

In addition to a representative of The Watchmakers of Switzerland who spoke

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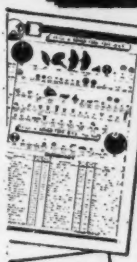

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A. H. & J.—5-54

on "Merchandising the Watch Repair Department For Greater Profits," the large audiences heard talks by other major suppliers, discussing techniques for increasing service department profits through the proper use and merchandising of products available through material houses. Supplier firms selected by the host jobbers to participate included the L & R Manufacturing Co., the Dennison Manufacturing Co., and Jacoby-Bender, Inc.

One of the Highlights of this Round-Table series was the surprise presentation at the Los Angeles meeting of a plaque by the Horological Association of California to The Watchmakers of Switzerland "For Outstanding Contributions in Elevating the Professional Standing of Watchmakers".

Norman Luth (left), representing the Horological Association of California, presents a commendatory plaque from the association to The Watchmakers of Switzerland, represented by Richard Romanelli at the Repair for Profit Round-Table in Los Angeles.

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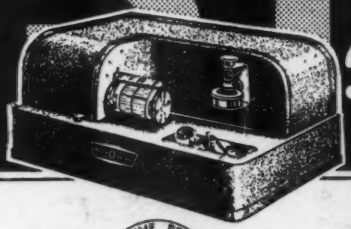

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